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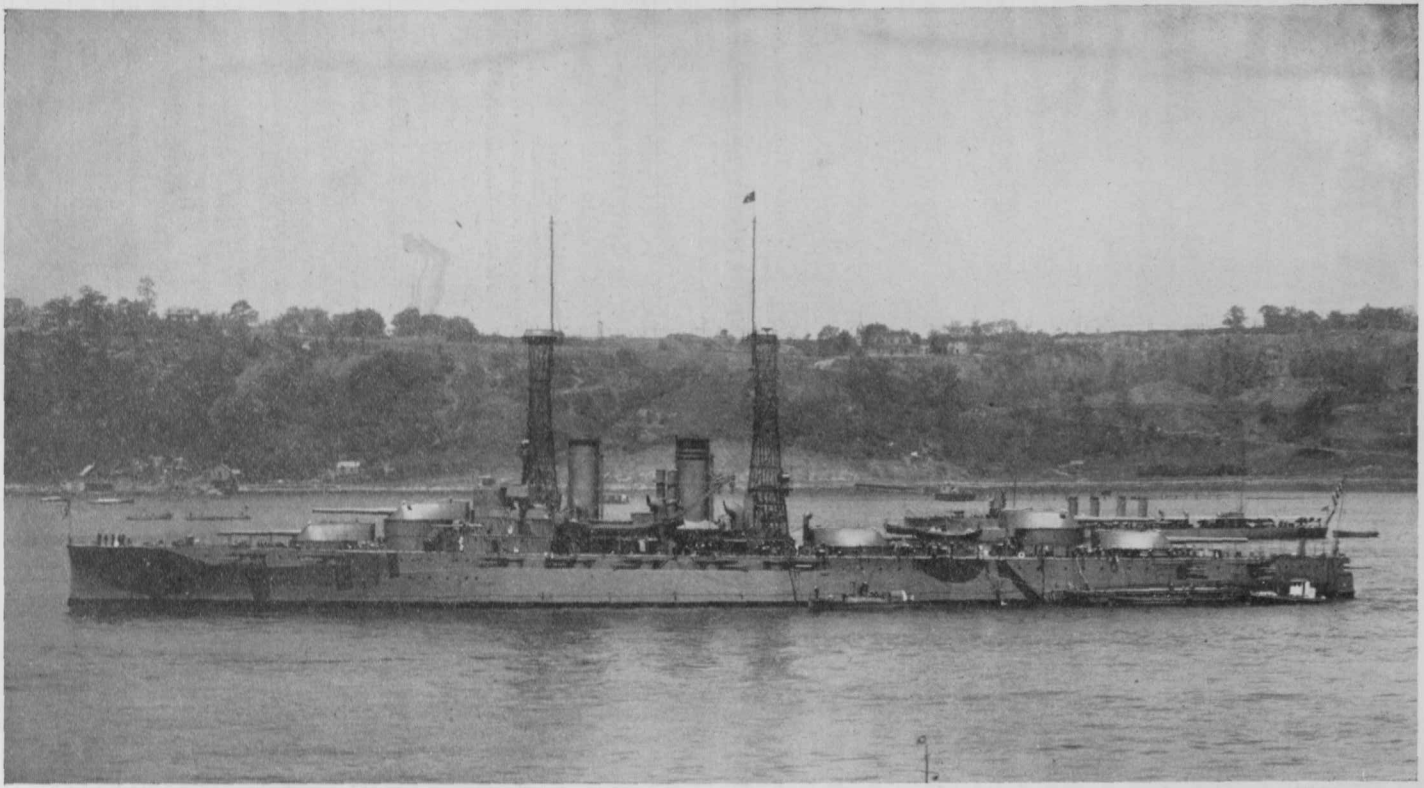

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THE COAST ARTILLERY JOURNAL

Volume 69 October, 1928 Number 4

Seacoast Defense

By MAJOR RODNEY H. SMITH, C. A. C.

SEACOAST defense, like so many other important matters in this country, seems to have been initiated by George Washington. In 1793 he notified Congress of the need for fortifying the vulnerable portions of our coast line, but not until 1794 did Congress make an appropriation for seacoast works. General Knox, then Secretary of War, laid down the types and character of the defenses to be constructed. It will be remembered that Knox had served throughout the Revolution and was rated as Washington's ablest artillery officer. Accordingly, we might expect his ideas to be worth studying. They are, and the chief lesson for us in the Secretary's instructions is his lively appreciation of the necessity for protecting harbor areas and their armament not only from seaward attack by ship's guns but also against land attack by hostile troops in flank and rear. We have at times strayed a bit from this logical conception of an experienced and successful artilleryman, as will be shown later. Knox proposed to obtain this protection against land attack by placing isolated batteries in redoubts or closed fortifications designed for all-around defense, and by locating blockhouses to cover the rear and flanks of the groups of batteries emplaced in open works.

Unfortunately, the actual development of seacoast defense languished, due chiefly to lack of appropriations, until the War of 1812. During that war we were afforded the ignominious spectacle of seeing our Federal Government put to flight and our capital captured and burned by Ross with a small British expedition of some 4500 men. We further saw Pakenham's veterans of the Peninsular wars land unopposed at New Orleans, though happily with a different outcome, thanks to the military genius of Andrew Jackson.

As a result of the bitter lessons learned in that war the work of seacoast fortification was undertaken in earnest. General Bernard, one of Napoleon's most distinguished engineer officers, was called to this country in 1816. A "Board of Engineers for Fortifications" was

created and the defense of the coast of the United States really began to take form and substance.

Fortress Monroe was one of the earliest fortifications begun. Work on it started in 1818 and some fifteen years later, or in 1833, it was reported by the Chief of Engineers as practically completed. It is interesting to note that there were so many changes made in the original plans and disputes thereon, that it never was entirely completed. This celebrated fortress is constructed of granite and is a closed, bastioned work of the Vauban type with a wet moat surrounding it nearly two miles long. Originally, it contained the tremendous armament of over 400 guns of various calibers and cost the imposing sum for those times of $1,700,000.

The Fortifications Board laid down in 1821 the following misssions that seacoast defense to be effective must carry out:

1. To close important harbors to an enemy, and secure them to the navy of the country.
2. To deprive an enemy of strong positions, where, protected by his naval superiority, he might fix permanent quarters in our territory, maintain himself during the war, and keep the whole frontier in perpetual alarm.
3. To cover our great cities against attack.
4. To prevent as much as possible the great avenues of interior navigation from being blockaded by a naval force, at their entrance into the ocean.
5. To cover the coastwise and interior navigation, and give to our navy the means necessary for protecting this navigation.
6. To cover the great naval establishments.

This proposition has yet to be presented more clearly and effectively.

By 1860 the fortifying of a large number of the harbors on the Atlantic and Gulf coasts had been completed. The fortifications in general resembled Fort Monroe, being *closed* masonry works of granite where convenient or of brick where stone was not readily available, and were designed to resist attacks by land as well as direct naval attacks. These forts—forts *in fact* as well as name—successfully withstood the ordeal of battle in the South during the Civil War. Though the North developed during the war the most powerful navy afloat, these Southern forts defeated almost without exception purely naval attacks to reduce them and frequently necessitated protracted siege operations by large bodies of troops to effect their capture. Indeed, the fortifications protecting Savannah and Charleston surrendered only when cut off in rear and isolated by Sherman's large and powerful army.

Subsequent to the Civil War there was little or no development of coast or harbor defense until 1885. In that year the Endicott Board, or, to give it its official designation, the "Board on Fortifications or

other Defenses," was appointed by act of Congress. This Board made a thorough study of the subject of harbor defense and submitted a report in 1886 giving a list of the places to be fortified and the character of the defenses at each place. From 1886 to 1905 the defenses constructed in the United States followed the general recommendations of this board, being modified however, with the development of the means of defense.

This period saw the transition from closed masonry forts, capable of all-around defense, to open batteries more or less dispersed, fortified by earth and concrete against attack by naval artillery only, and designed and emplaced for attack of naval targets only. This transition was brought about mainly by the greatly increased power of heavy artillery. As a result of this transition we had at every important harbor in the continental United States, military reservations or posts containing groups of batteries of seacoast artillery suitable for defense against naval attack, but peculiarly vulnerable to land or landing attack from the flanks and rear. Though no longer forts in fact, *i. e.*, localities fortified and garrisoned for all-around defense, these military reservations containing seacoast batteries unfortunately continued to be known as "forts," and, deluded by the former significance of the name, we seem to have given scant attention to land defense.

In 1905 a "National Coast Defense Board," commonly called the Taft Board, was appointed by the President to "recommend the armament, fixed and floating, mobile torpedoes, submarine mines, and all other defensive appliances that may be necessary to complete the harbor defense with the most economical and advantageous expenditure of money." By this time the country had secured a number of overseas possessions, defense of which it was necessary to consider. This board submitted a new list of harbors to be fortified, including those of the colonial possessions. It increased the armament at various places and in general covered the question of defense against purely naval attack very thoroughly, but failed to realize or at least to emphasize the necessity for providing troops for land defense. In its report this board stated the following interesting conclusion as to the defense of any particular harbor: "If the armament will compel the enemy to land in order to effect its capture, it has fulfilled its functions and any increase in armament thereafter is unwarrantable expense in materiel and personnel."

In 1907 we woke up to the fact that forcing an enemy to land was insufficient, as our so-called forts, with their groups of open batteries, incapable even of all-around fire except in the case of the mortars, were,

against land attack from the rear and flanks, about as vulnerable as a hedge-hog on his back. In this year a War Department board known as the Wotherspoon-Haan Board undertook the planning of the land defense of our harbors and seacoast batteries.

This board in planning the land defense of our harbor areas was forced to consider the question of the defense of the entire coast line. This seems to be the first occasion, subsequent to the Civil War at least, on which the question of true coast defense as distinguished from purely harbor defense was given any consideration. Our actual (not potential) resources at that time were so extremely limited that the board was compelled to adopt a rather *negative* system of defense. It was conceded that an enemy once in command of the sea could land in force practically unopposed at our secondary unfortified harbors or on favorable open beaches outside of fortified harbors. For the local land defense of the seacoast armament of fortified harbors against capture or damage by small raiding parties landed from an attacking fleet, field works were to be constructed and small bodies of mobile troops assigned thereto, to be known as "Coast Artillery Supports." These Supports were to consist of infantry if available; if not, *the Coast Artillery was to furnish its own supports.*

For the general protection of the fortified harbors and coast cities against land attack by large forces, "Coast Guards" were to be assigned from what was then styled the mobile army. This term was appropriate at that time as the Coast Artillery had no mobile units. It is no longer correct in view of the fact that this branch now mans railway, tractor, and mobile antiaircraft artillery, but unfortunately the term has survived in certain quarters.* A study of the land defense of our various harbor areas was made which called for a total number of "Coast Guards" far exceeding the size of our combined Regular Army and National Guard at that time, and was regarded by many, owing to our pitiful state of unpreparedness, as rather impracticable. Owing to this same state of unpreparedness and the consequent length of time it would take to provide troops, enemy landings in force were to be opposed *after* the enemy had landed. "Semi-permanent fortifications or field works" were to be constructed covering the land side, *i. e.*, the flanks and rear of each harbor area, and the Coast Guards were there to await the attack of the hostile expeditionary forces. The dominant idea was passive defense. While the "Coast Guards" were holding off the enemy, additional divisions and field armies were to be hurriedly mobilized and concentrated at strategic centers for further operations.

*N. B. The scheme called for 30 pre-war divisions.

Although the above scheme was far from good, it was perhaps the best that could be devised under the conditions existing then, and showed a realization at last that a satisfactory solution of the problem of coast defense entailed the use of all arms of the Army and did not consist merely of resistance by the Coast Artillery to purely naval attacks of harbors.

This scheme of coast defense, however, did contain some vital errors which affect us even to this day. First, as indicated in the 1909 and 1914 Drill Regulations for Coast Artillery, *the senior coast artillery officer* of the fortified harbor area was to have command of these "Coast Artillery Supports" just mentioned. This might have passed muster from a command viewpoint if these supports were to be Coast Artillery troops, but that in itself constituted the second error. These supports should *never* be Coast Artillery and no compromise should have been permitted. Infantry should be insisted upon for this work, as the Coast Artilleryman has all he can do to man his guns and mines and accessories and should not be asked to drop his rammer, grab an infantry rifle, run to the beach, and fight infantry. He obviously can not perform both jobs at the same time, and this compromise of using Coast Artillery troops as red-legged infantry when infantry is not available exposes him to just this necessity of attempting to handle two jobs simultaneously, as the Coast Artillery garrisons have never been more than sufficient to man their batteries. There is no surplus provided to act as infantry. Following this compromise the poor Coast Artilleryman was saddled with a third job, namely, the manning of obsolete light guns discarded by the Field Artillery. These were known as *land defense guns* and *no additional artillerymen* were provided to man them. These old 3.2 inch "grasshoppers," with no recoil system and a consequently pitifully low rate of fire, were to be hauled around *by hand.*

About 1909, during the annual summer "war service period," we were furnished a striking example at Fort Adams, Rhode Island, of what might occur when Coast Artillerymen are charged with being their own supports. The enemy, the garrison of Fort Greble, was putting on a simulated night naval attack of Forts Adams and Wetherill by means of all the available harbor tugs and launches and making such a good job of it that it required the manning of all the batteries and searchlights at Forts Adams and Wetherill and took the attention of *all* of our personnel to do it. While this was going on the enemy quietly landed a raiding party from small boats without lights, well on the flank of Fort Adams, and captured every battery from the rear.

These batteries completely dominated Fort Wetherill, while the guns at Wetherill were so sited that they could not shoot at Adams, and the show was over.

Again in the Panama maneuvers of 1924 the enemy succeeded in landing a force of 1600 marines at Fort Randolph. There was actually no infantry present to resist the landed troops and Randolph was promptly captured, as the resistance of the Coast Artillery garrison proved ineffectual *once the enemy got ashore.* In this particular case there was a dispute as to whether the marines could actually have landed in the face of the artillery fire delivered against them. But this doesn't affect the general proposition, for the enemy may get ashore when artillery fire alone cannot deny the landing, as during a fog or at points out of range of artillery fire, or because of effective neutralization by hostile air bombing or naval artillery fire.

This mistaken idea that Coast Artillery troops alone can take care of the beach defense of a harbor area, which still exists in the minds of some, has contributed to the isolation of the Coast Artillery Corps and to a misunderstanding of the Coast Artillery role in the tactical team, by the Army as a whole, and to a neglect by the other arms to study properly and train themselves in the vital art of coastal warfare *which concerns all arms.* Any artillery personnel is, of course, under obligation to put up a "last ditch" defense of its guns against attacking infantry at close quarters, but this is a vastly different proposition from abandoning its guns and running to the beach to fight hostile infantry as it lands. The latter procedure results in silencing the guns at the very time when they may be worst needed. To say there may be no infantry of your own for beach defense is begging the question. There must be infantry. You cannot successfully fight hostile infantry and artillery with troops that simultaneously or alternately try to act as both. Beach defense and "last ditch" local defense of batteries must not be confused.

The third error of the 1907 scheme was in making the Commander of the Coast Artillery of a harbor area and the Commander of the "Coast Guard" independent of each other, but telling them they would cooperate—a futile substitute for unity of command.

These errors were all a product of the *fortress misconception.* Still using the term "fort," we continued the mistake of thinking of our groups and groupments of vulnerable open batteries, which constitute the artillery defenses of a harbor, as a collection of forts akin to the closed works of Civil War days, when actually there is no resemblance except the name. It was perfectly proper for the commander of such

a closed work to command troops of *all* arms therein, though even then he did it *not as an artilleryman,* but as tactical commander of the fortress. It is *not* proper for the artilleryman commanding a collection of open and more or less dispersed batteries to command troops of other arms *as an artilleryman.*

The Chief of Coast Artillery in 1924 enunciated the following sound principle: "The status of a harbor defense command in a sector or subsector should be in no wise that of a kingdom within a kingdom." But unfortunately, the training regulations and Army Regulations, in particular TR 435-300 and AR 90-40, do not bear this principle out, for there we find in substance the following definition and description: "A harbor defense consists of one or more forts provided for the defense of a harbor or point of the coast. Harbor defenses are established, their limits defined and their headquarters designated in orders or instructions from the War Department." But the only orders to date, emanating from higher authority, giving the limits of any harbor defense, are the executive orders of the President fixing the metes and bounds of the military reservation—a purely peacetime administrative proposition which is done for any military post and has little or nothing to do with tactical employment of troops. Nevertheless it has had the effect of setting up a kingdom within a kingdom, for the TR goes on to prescribe as follows: "Unless otherwise specially ordered by the War Department, the *senior coast artillery officer* present for duty is the harbor defense commander. He coordinates and *directs all* military operations within his command and is responsible for the proper tactical employment and coordination of *all* the seaward, landward, and antiaircraft defense elments of his command." Army Regulations 90-40 of a later date than the TR is even stronger for it leaves out the qualifying phrase, "unless otherwise specially ordered by the War Department."

Now a study of the defense of our important harbor areas indicates the necessity in most cases for the presence of at least one infantry division for defense of the area against landing attacks in force. I cannot conceive of the "senior coast artillery officer present" commanding any part of a division just because it happens to be located, for proper beach defense, on the Coast Artillery reservation. In other words, territorial command by artillerymen *as such* is unsound. This misconception is due to the old idea that the defense of a harbor or base was primarily a defense by coast artillery forts against war vessels, and hence all military operations in the harbor area should be controlled by the coast artillery commander. This idea is no longer correct, if it ever was, because the adequate defense of a primary

harbor or base against capture by a hostile joint overseas expedition will require large bodies of troops of all arms working together as a tactical team and this team will be commanded and coordinated by a tactical commander of troops, normally a general officer of the line. The Seacoast Artillery is a most important part of the team, with the vital role of destroying or neutralizing the hostile naval artillery, and should be limited to the execution of purely artillery and mine missions in order that it may perform its rôle effectively and without unnecessary handicaps. We have realized this at Corregidor, where the harbor defense commander is *not* the "senior Coast Artillery Officer present," but *is* a general officer of the line who is tactical commander of all troops and will have under his control subordinate artillery and infantry commanders.

Subsequent to the World War, and thanks mainly to our greatly increased actual resources in materiel and trained men, the so-called "Positive System of Coast Defense" was conceived. This system, published in a memorandum by the General Staff in 1920, left the mistaken fortress idea of harbor defense unmodified, but was a marked advance on the Wotherspoon-Haan scheme of general coast defense as the enemy was to be denied not only the primary harbors, but at all critical points of important areas on the coast line outside of primary harbor areas he was to be met at the water's edge and denied a landing. The chief instruments in accomplishing this defense of secondary harbors and beaches were to be infantry, machine guns, and light and medium artillery. It was admitted that mobile seacoast artillery would assist materially in defense of secondary harbors and even in open beach defense itself, but it was unfortunately not regarded as essential or necessary. This refusal to admit the vital importance of mobile seacoast artillery in beach defense is due to a failure to appreciate the tremendous increase of the effectiveness of supporting naval artillery fire since the war.

The authors of the above memorandum were evidently influenced by the ineffectual artillery support furnished by the Allied naval vessels at the Dardanelles to the landing attacks made there, even though unopposed by seacoast artillery. There were many reasons for that comparative failure, among others: the flat trajectory of the naval guns, the lack of proper ammunition, *i. e.*, H. E. shell, the unusually rugged and broken terrain offering excellent defiladed positions for the defense, the dearth of airplane spotting and the lack of effective communication and liaison between the ships and the troops that did get ashore.

None of the above favorable conditions for the defense may be expected to exist in the future, save, by chance, favorable terrain.

That the British have learned their lesson is evidenced by a recent letter of General Hamilton, the Army Commander at Gallipoli, to Captain Puleston of our navy, author of a book on the Dardanelles Expedition. In that letter, Hamilton says: "As a naval officer you should not dismiss so cursorily this point of the increased efficiency of the ships' artillery. Until quite the end of the expedition, the whole system of gunnery, signaling, etc., were so entirely different that there was actually no coordination. Just at the very end this was at last successfully established by a brilliant artillery officer in conjunction with the naval people and the results were astonishing. The Turkish trenches, which were taken with little loss after a ship's bombardment (which would have been entirely inefficacious previously) were trenches which time after time we had assaulted without making any impression upon them."

That the British now appreciate the value of high-angle fire is evidenced by reports that the *Nelson* and *Rodney*, their two battleships nearing completion, have their 16-inch guns mounted with a maximum elevation of 40 degrees and their 6-inch guns with an elevation of 60 degrees.

If an enemy attacks us with highly mobile, rapid-fire, armored, heavy artillery, able to do what General Hamilton has described, we will be at a tremendous disadvantage if we have no heavy, long-range, armor-piercing artillery with which to hold him off; especially as all the first-class navies of the world have made tremendous strides in fire control and indirect fire methods since the fateful days of 1915. We may now expect naval forces supporting landing attacks to be supplied with H. E. shell, shrapnel, and possibly gas shell, to be equipped specially for high-angle fire, and to use airplane spotting effectively. This will permit the enemy to search reverse slopes for defiladed elements of the defense, and to furnish effective accompanying fires to the attack with his terrible secondary guns, unless we hold him well out with seacoast artillery. If unopposed by seacoast artillery, the enemy's transports will stand well in to shore, his landing waves will have a much shorter distance to traverse in small boats where he is at a maximum disadvantage, and his supporting war vessels will come in close, just out of range of our light and medium artillery, and most effectively neutralize or destroy it, as well as our machine guns and other elements of the defense, undisturbed by counterbattery.

To say that seacoast artillery is unnecessary for the defeat of landing in force, because our air forces will hold the enemy off, is unsound

in view of the fact that a hostile overseas expedition will not attempt to force a landing until the enemy has gained at least temporary superiority in the air or unless the visibility is such that air forces are helpless. During such periods of fog or low visibility, the seacoast artillery, equipped with mobile sound ranging units, will be invaluable, not only by reason of its own fires, but also because of the timely warning of landing attacks given by its sound ranging units in the other elements of the defense.

CONCLUSIONS

1. The present designations of "a harbor defense" and "fort" to mean Coast Artillery tactical commands are erroneous, in that they attempt to give *artillerymen, as such*, territorial command, and *ex officio* control of troops of other arms within the said territorial command.

2. The term "fort" now has no tactical meaning in our service and merely signifies a military post or station, except at Corregidor, where we have a natural fortress garrisoned by the combined arms. In a broad sense, the entire island of Oahu and the Canal Zone may also be regarded as fortress commands, as each is organized for all-around defense, garrisoned by all arms, and commanded by a general officer who is tactical commander of the team of the combined arms and commands no one arm directly. This is of course as it should be, but note how little these correct examples of fortresses resemble the so called "Coast Artillery forts."

3. Seacoast artillery should not be organized tactically into "forts" and "harbor defenses," but like other artillery, into battalions, regiments, and brigades. Groups, subgroupments, and groupments should be formed as required.

4. Seacoast artillery commanders, like any artillery commanders, should be charged *only* with the execution of artillery missions and the command *only* of artillery (and mine defense).

5. The term "harbor defense" properly should mean the defense of a harbor area by the combined arms under a commander who exercises direct command of no one arm, but commands his team as a whole.

6. The loose use of the term "coast-defense troops," or "harbor-defense troops" to mean *only* Coast Artillery is incorrect. The term should apply to troops of *all* arms employed in coast or harbor defense. It is analogous to saying "divisional troops" when only "divisional artillery" is meant, and is equally wrong. Seacoast artillerymen should *not* be regarded, either by the Coast Artillery Corps or the Army in general, as a strange and peculiar breed of hermaphropdite fortress

troops, able to perform successfully the functions of *all* arms in the defense of harbors or bases, but should be known by everybody for what they actually are, namely, highly trained and efficient artillerymen, and nothing else.

7. Without seacoast artillery, the infantry and supporting arms will have a most unhappy time denying a landing attack supported by modern naval artillery using curved fire, H. E., and gas shell, and plane spotting.

8. Seacoast artillery alone can not hope to defend a harbor area successfully against hostile attacks involving landing efforts. As well expect field artillery alone to hold a river line.

9. In coastal warfare the true role of seacoast artillery is a purely artillery one, namely, the effective execution of destruction, neutralization, and interdiction fires:

Primarily against hostile naval craft,
Secondarily against enemy troops ashore.

MAXIM LXXI

Nothing can excuse a general who takes advantage of the knowledge acquired in the service of his country, to deliver up her frontier and her towns to foreigners. This is a crime reprobated by every principle of religion, morality, and honor. —*Napoleon's* Maxims of War.

Antiaircraft Field Exercises

EDITOR'S NOTE.—*In view of the influence which publication of the Camp Upton exercises had on the training of antiaircraft regiments, the* JOURNAL *presents the following exercises used this summer at Mount Gretna. They can readily be adapted to other terrain.*

FIELD EXERCISES NO. 1

SECTION I

SITUATIONS (Advance Sheet).

1. GENERAL SITUATION.—*a.* Maps: Geological Survey, 1:62,500, Lebanon and Lancaster quadrangles.

b. The Susquehanna River and west shore of Chesapeake Bay form the boundary between Blue east and Red west between whom war was declared on July 25, 1928.

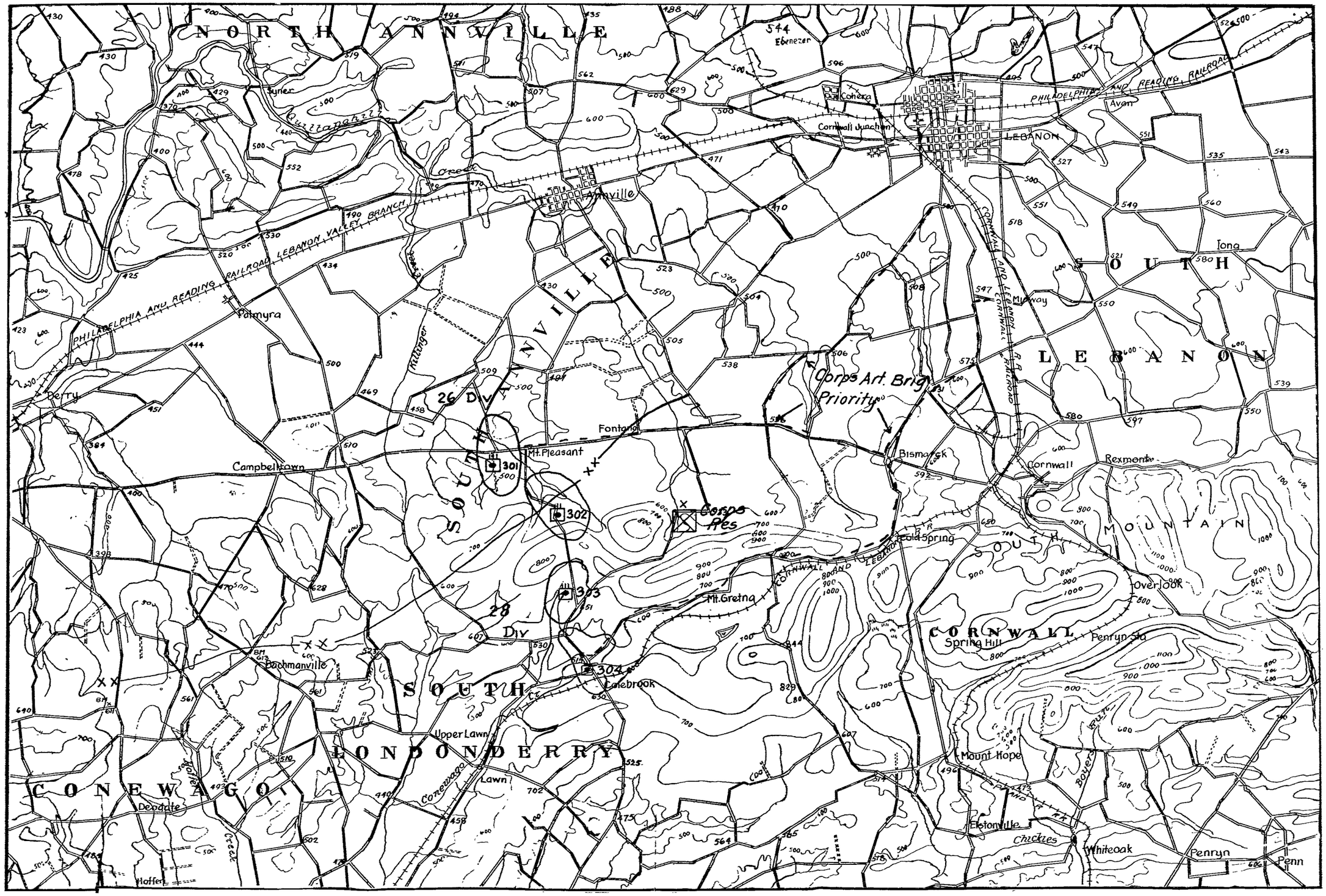
c. The crossings of the Susquehanna from Havre de Grace to Harrisburg (incl.) are being guarded by Blue cavalry detachments. Red mobilization is known to be proceeding and there have been some flights over the boundary by Red observation airplanes.

2. SPECIAL SITUATION (Blue).—*a.* The III Corps, consisting of the 26th and 28th Divisions and usual corps troops, is mobilizing in the vicinity of Philadelphia. The 213th Coast Artillery (AA), the organic antiaircraft regiment of the corps, which had completed its mobilization early, was ordered to proceed to Mt. Gretna in advance of the remainder of the corps and to be prepared to cover detraining points in that vicinity.

b. At 8:30 A. M., 2 August, the 213th Coast Artillery had detrained at Mt. Gretna and was disposed as follows:

The 1st Battalion in the following order: Headquarters Detachment, Batteries B, C, D, and A, and Combat Train, is parked heading northeast on the road extending northeast from the crossroads ¼ mile south of Mt. Gretna Railroad Station, the tail of the column at the crossroads.

The 2d Battalion is parked in the order: Headquarters Detachment, Batteries E, F, G, and H, immediately following the 1st Battalion.


NORTH ANNVILLE
Ebenezer
Cohera
Cornwall Junction
LEBANON
Avon
PHILADELPHIA AND READING RAILROAD
Syner
Quittapahilla Creek
Annville
LEBANON VALLEY BRANCH RAILROAD
Palmyra
PHILADELPHIA AND READING RAILROAD
Hilltinger Creek
ANNVILLE
SOUTH LEBANON
Midway
Long
CORNWALL AND LEBANON CORNWALL R.R. RAILROAD
Derry
Campbelltown
26 Div
Fontaine
Mt. Pleasant
301
302
Corps Art. Brig Priority
Bismarck
Cornwall
Rexmont
Corps Res
303
28 Div
Mt. Gretna
Cold Spring
SOUTH MOUNTAIN
Over Look
CORNWALL AND LEBANON RAILROAD
Bachmanville
304
Lakebrook
SOUTH LONDONDERRY
CORNWALL
Spring Hill
Penryn Sta
Upper Lawn
Lawn
Conewago Creek
CONEWAGO
Deodate
Mount Hope
Boltz Run
Elstonville
Chickies
Whiteoak
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Penn
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½ 0 1 2 3 4 Miles
1 ½ 0 1 2 3 4 5 Kilometers

½ 0 1 2 3 4 Miles

1 ½ 0 1 2 3 4 5 Kilometers

The Regimental Headquarters Battery and Service Battery are along the road from Mt. Gretna Railroad Station to crossroads ¼ mile south.

The regimental commander and his staff are at the post office near crossroads ¼ mile south of railroad station.

Both battalion commanders and their staffs are at the crossroads ¼ mile south of railroad station.

NOTE: Advance Sheet to be issued to all officers of the regiment on the evening of 1 August.

The crossroads ¼ mile south of Mt. Gretna Railroad Station is shown on map of Mt. Gretna reservation to be near BM 624.08 and the post office is near this crossroads.

SECTION II

SITUATION (Continued) AND REQUIREMENT.

3. SPECIAL SITUATION (Blue) CONTINUED.—*a.* At 8:30 A. M. 2 August, Colonel 213th Coast Artillery (AA), at the post office near crossroads ¼-mile south of railroad station, received the following message from the corps commander, III Corps:

"The III Corps, moving by rail, will begin to arrive today at detraining points indicated in blue on operations map: (See inserted map). First train at each detraining point arrives at 12:00 noon. Reliable reports indicate that Red bombardment and attack aircraft are being prepared to operate from airdromes near Gettysburg. Move your regiment to cover the detraining points."

b. Upon receipt of this message the regimental commander sent the following message to his battalion commanders:

"This regiment will be prepared to move at 9:15 A. M. via COLD SPRING, to cover detraining points between LEBANON and CORNWALL. Battalion commanders report to me at the post office near crossroads ¼ mile south of railroad station at 8:50 for orders."

c. At 8:50 A. M. the battalion commanders reported to the regimental commander at the post office and the regimental commander issued the following order:

"Reliable reports indicate that Reds are preparing to operate bombardment and attack airplanes from airdromes near Gettysburg.

"The remainder of our corps begins to arrive at noon today at detraining points shown in blue on operations map.

"This regiment moves at once to cover the detraining points.

"The 1st Battalion moving via road junction ¾ mile northeast of Mt. Gretna Railroad Station—Cold Spring—road junction 1900 yards east of Cold Spring—Lebanon will furnish gun defense, giving special attention to enemy bombardment aviation. The battalion will clear the road junction ¼ mile south of railroad station at 9:15 A. M.

"The 2d Battalion following the 1st Battalion will furnish machine-gun defense of the detraining points.

"All roads are available for the movement.

"Units of the 1st Battalion have priority on the roads.

"Positions will be occupied and preparations made to open fire without delay.

"Positions will be camouflaged.

"Regimental Headquarters Battery and Service Battery, Capt. Service Battery commanding, will follow the 2d Battalion to road junction 1000 yards west of Cornwall thence to Cornwall.

"Command Posts:

Regiment: Cornwall.

1st Battalion: Hill 641 (1½ miles east of Midway).

2d Battalion: Midway.

"Accompanied by R-Ex and R-3 I will start at once for Cornwall.

"It is now 8:55 A. M. If there are no questions that is all."

4. REQUIREMENT.—*a.* Actions and orders actually issued by battalion commanders upon receipt of the warning message from the regimental commander.

b. Reconnaissance by battalion commanders; orders issued by battalion commanders for the occupation of positions.

c. Actual occupation of positions by all units of both battalions.

NOTE: This section to be issued to Regimental Commander and his staff at 8:30 A. M., 2 August, and copies to battalion commanders and their staffs at 8:50 A. M. upon reporting to the regimental commander in compliance with the warning order.

FIELD EXERCISE NO. 2

SECTION I

SITUATION AND REQUIREMENT

1. GENERAL SITUATION.—*a.* The general situation is the same as that in Field Exercise No. 1.

b. Late in the afternoon of 2 August, enemy observation planes flew over the area covered by the 213th Coast Artillery. During the period 3 August to 5 August, several attempts were made to bomb the railroads in the vicinity of detraining points. These attempts were supported by attack planes but on the whole met with little success.

2. SPECIAL SITUATION.—*a.* The Commanding General, III Corps, arrived at Cornwall on 4 August and established his command post in that village.

b. At 9:00 A. M. 6 August, Colonel 213th Coast Artillery received the following instructions from the corps commander through the corps chief of artillery:

> "There has been some delay in the concentration of the corps but the last units will complete detraining at 11:00 A. M. today. Bivouac areas for the divisions and corps troops are as indicated in blue on operations map. You will be prepared to cover the troops in their bivouac areas by 12:00 noon. Corps headquarters will be informed as soon as practicable of the roads which will be required for movement of batteries."

c. At this hour all units of the regiment are in the positions occupied to cover the detraining points. Battalion commanders are at their command posts. Platoons of the searchlight battery are attached to gun batteries.

3. REQUIREMENT.—*a.* Regimental commander's orders for the occupation of position.

b. Battalion commanders' reconnaissance and orders.

c. Actual movement to and occupation of new positions.

FIELD EXERCISE NO. 3

SECTION I (Advance Sheet)

GENERAL AND SPECIAL SITUATIONS

1. GENERAL SITUATION.—*a.* Maps: Geological Survey, 1:62,500, Lebanon, Hummelstown, Lancaster, and Middletown quadrangles.

b. War has existed since 15 July between two states, Blue north and east of Susquehanna River and Red south and west. Reds, being better prepared, had crossed the boundary at Columbia and points south. The Red advance was finally stopped by the Blue First Army along the general line: Mount Joy—Lancaster—Quarryville.

2. SPECIAL SITUATION (Blue).—*a.* Red activity. During the night of August 4-5 information was received at headquarters First Army that enemy troops were being concentrated in the vicinity of Newberrytown. On 6 August further information was received to the effect that bridge material was being brought to the river opposite Middletown.

b. III Corps. The III Corps, consisting of the 26th and 28th Divisions and usual corps troops, completed its concentration in the vicinity of Robesonia on 6 August. It was ordered to march on Middletown to cover the right flank of the army and to prevent Reds from effecting a crossing in the vicinity of Middletown. The corps marched the afternoon of 6 August.

c. Contact with Red. During the early afternoon of 7 August the advance guards of the III Corps made contact with Red troops. The corps was ordered to go into bivouacs in areas shown in blue on operations map.

d. Situation at 5:00 P. M. At 5:00 P. M., 7 August, the situation as known to the corps commander was as follows:

Reds, estimated as a division, had crossed the Susquehanna by two bridges which they had constructed just south of Middletown and had occupied and were entrenching a position along the line shown in red on operations map, with an outpost as shown on the same map. Some entrenching was being done along this line. No more Red troops in the vicinity of Newberrytown, but enemy attack planes were reported arriving at an airdrome near Yorkhaven.

The III Corps was moving into the bivouac areas designated, with an outpost along the line shown in blue on operations map. All elements of divisions and the corps artillery brigade would be in by 6:00 P. M. and the remainder of the corps by 10:00 P. M.

The 213th Coast Artillery (AA) was disposed as follows: Regimental command post with that of the corps commander at Cornwall. Remainder of Regimental Headquarters Battery and Service Battery moving with the corps artillery brigade.

1st Battalion: Battery A, platoons attached to gun batteries. Battery B in position on hill 3500 yards southwest of Lebanon. Battery C on hill just west of Bismarck. Battery D, moving with the corps artillery brigade to be in position on hill one mile east of hill 641 (1½ miles east of Midway) by 6:00 P. M. Battalion command post at hill 641. Battalion Combat Train moving with corps artillery brigade.

2d Battalion: One battery attached to 26th Division, one battery attached to 28th Division. 2d Battalion (less two batteries) covering corps troops and trains other than the corps artillery brigade.

The battalion commander, 1st Battalion, is at his command post. The battalion commander, 2d Battalion, will arrive at Cornwall at 6:00 P. M.

NOTE: This advance section to be issued to all officers of the regiment at 4:00 P. M., 7 August.

SECTION II

SPECIAL SITUATION (Continued) AND REQUIREMENT

3. SPECIAL SITUATION (Blue) Continued.—*a.* At 5:30 P. M., 7 August, Colonel 213th Coast Artillery attended a conference at corps headquarters at which the division commanders, the corps chief of artillery, and corps general staff were present. At this conference the corps commander outlined his plan for the employment of the corps in part as follows:

The III Corps to attack at 4:30 A. M., 8 August, envelop the Red right, drive him west of Swatara Creek, and secure the crossing of the Susquehanna just south of Middletown.

Formation, line of departure, zones of action, positions for regiments of corps artillery brigade to be as shown in red on Operations Map III Corps, 8 August (See insert).

The 26th Division (less one brigade), making its main effort on its left, to secure the hills northeast of Bachmanville and assist the 28th Division in capturing the high ground in the vicinity of Bachmanville; then to advance and secure the east bank of Swatara Creek from Hummelstown to the boundary between divisions.

The 28th Division to envelop the Red right, capture the high ground in the vicinity of Bachmanville, Round Top, the hill 1½ miles southeast of Royalton, and cover the bridges over the Susquehanna just south of Middletown.

The 301st Field Artillery Brigade to support the attack of the corps from red positions indicated on operations map.

The 213th Coast Artillery (AA) to cover the corps in the deployment and during the attack.

One brigade from 26th Division to concealed position one and one-half miles south of Fontana in corps reserve.

Movements to attack positions to start after 8:00 P. M., to be made without lights and to be completed by 4:00 A. M.

Corps artillery brigade after 9:00 P. M. to have priority on the road: Lebanon—Fontana—Mt. Pleasant, the road: Midway—Bismarck—Cold Spring—road junction 518 (north of Colebrook), and the road from Bismarck to Fontana (See operations map).

Command Posts:

III Corps: No change.

26th Division: Mt. Pleasant after 10:00 P. M.

28th Division: Colebrook after 10:00 P. M.

b. Plans for the movement. Colonel 213th Coast Artillery was informed by division commanders that they would start their movements to attack positions at 8:00 P. M. The commander of the 301st Field Artillery Brigade stated that he would send details and advance parties forward at once and would start the tractor columns at 9:00 P. M., with the 301st and 302d on the Lebanon—Fontana—Mt. Pleasant road and with the 303d and 304th on the Midway—Bismarck—Cold Spring road. The heavy motor (truck) columns to start at 11:00 P. M. clearing present bivouac areas at 12:40 A. M., all to be in new bivouacs by 2:40 A. M. Brigade ammunition train and regimental field trains to remain in present bivouacs.

c. Administrative details. Colonel 213th Coast Artillery was informed that field and service trains of divisions and corps troops other than the corps artillery brigade would remain in present bivouacs.

d. Plan for antiaircraft artillery. Colonel 213th Coast Artillery was directed by the corps chief of artillery to prepare a complete plan

for the employment of the antiaircraft regiment, including any recommendations for control of movements of batteries by the corps or division commanders, and to submit the plan by 9:00 P. M.

4. REQUIREMENTS.—The plan submitted by Colonel 213th Coast Artillery, *omitting* administrative details and location of command posts.

NOTE: This section to be issued to all officers at 5:30 P. M., 7 August. Solution of regimental commander's problem to be submitted at 9:00 A. M., 8 August, at Cornwall.

SECTION III

SPECIAL SITUATION (Continued) AND REQUIREMENT

5. SPECIAL SITUATION (Blue) Continued.—*a.* At 6:30 P. M., 7 August, Colonel 213th Coast Artillery assembled his staff and battalion commanders at his command post at Cornwall where he issued orders which were in part, as follows:

"This regiment covers the corps in the deployment and the attack.

"The 1st Battalion covers the combat elements of the corps. Battery B moving at 8:00 P. M., under control of the 26th Division, will occupy a position on small hill 2100 yards north of Mt. Pleasant. Battery C, moving under control of the corps artillery brigade, will leave present position at 11:45 and move to position near road over saddle of hill 2300 yards west of present position. Battery D will move under control of the corps artillery brigade at the tail of the heavy motor column via Cold Spring to position near the Mt. Pleasant—Colebrook road on the saddle 2300 yards south of Mt. Pleasant.

"The 2d Battalion (less one battery) will cover division field and service trains and corps troops. One battery remains attached to the 28th Division. Battery now attached to 26th Division reverts to 2d Battalion at 8:00 P. M.

"Batteries will be prepared to fire from present positions as long as practicable and prepare to open fire from new positions with the least delay.

"Movements will be made without lights."

b. The locations of division field and service trains and of units of corps troops are shown in blue on operations map (bivouac areas).

c. Captain Battery ..... (attached to the 28th Division for the attack) was informed that the division would attack with brigades abreast, 55th Brigade on the right. Division reserve: one regiment in the draw one mile northeast of Colebrook. Brigade reserves: 55th Brigade one-half mile northeast of road junction 530 (one mile northwest of Colebrook), 56th Brigade near road junction 518 (north of Colebrook). He was further instructed that the division commander desired him to cover the reserves from exposed directions and be prepared to cover their advance.

6. REQUIREMENT.—*a.* Orders of battalion commanders.

b. Actual movement to positions by batteries and occupation of positions.

c. Orders of Captain Battery .. .... (attached to 28th Division) and occupation of position by this battery.

NOTE: This section to be issued to battalion commanders at 8:00 A. M., 8 August. At 9:00 A. M. batteries are to be in positions as given in the Advance Sheet (Section I) of this exercise. Battery commanders should be at the battalion command posts. Battalion commanders will issue their orders at that hour.

Tentative

9:00 A. M. actual time is 7:00 P. M. problem time.
9:30 A. M. actual time is 8:00 P. M. problem time.
10:00 A. M. actual time is 10:00 P. M. problem time.
10:30 A. M. actual time is 11:45 P. M. problem time.
11:00 A. M. actual time is 12:40 A. M. problem time.
11:30 A. M. actual time is 1:30 A. M. problem time.

MAXIM LIII

In march, or in position, the greater part of the artillery should be with the divisions of infantry and cavalry. The rest should be in reserve. Each gun should have with it three hundred rounds, without including the limber. This is about the complement for two battles.—Napoleon's Maxims of War.

The War Industries Board

By CAPTAIN THOMAS R. PARKER, C. A. C.

FOR two years the United States had been almost daily on the verge of being drawn into the World War but had learned little or nothing from its military lessons in the narrow sense, and, if possible, it had learned even less in the important sense of war as a conflict of nations. The blame for this lethargy can only be placed upon the confirmed and sentimental pacifism of our people as reflected in our political leaders.

Even if we had been a military people we should never have grasped the universal involvements of modern war until we were actually in it. Despite her forty years of deliberate planning and her idea that the army is but the sword of the nation, ineffective unless supported by the strenuous efforts of industry, Germany fell far short in her calculations as to the requirements of her military machine, failed in foresight regarding civilian needs, and very soon after beginning hostilities found herself reorganizing and working frantically to restore the disturbed balance of industrial and economic life.

Our country faced an extremely difficult task, even if it had been undertaken deliberately and long in advance of the emergency. Upon us devolved the tremendous task not only of meeting the special military requirements of ourselves and our allies but also the task of meeting the large food deficits of the allies and some neutrals and assuring our own people of adequate food, fuel, and clothing. Our problem of industrial mobilization was thus greater and more complex than that of any of the other nations at war, and it was thrust upon a people less prepared by tradition, training, economic structure, political organization, control, and forethought to undertake it than any other.

Lack of plan in no way interfered, however, with energetic action when we did enter the war. Inflated bureau establishments gave orders as fast as machines could copy them. Friction and confusion soon developed to such a point that the situation became all but hopeless; and then, beginning with a nucleus in the Council of National Defense, and gaining with the lessons of experience, there developed a war industry machine that ultimately grew into the War Industries Board.

The Council of National Defense was created by an act of Congress in April, 1916, and was organized in March, 1917. It was composed of the Secretaries of War, Navy, Interior, Agriculture, Commerce, and

Labor, and functioned under the advice of its advisory commission. Its duty was "to make available to the United States the best thought and effort of American industrial and professional life for the successful prosecution of war." It lacked executive power in its advisory commission, and as a result its economic functions were transferred to the War Industries Board.

The War Industries Board was created in July, 1917, by the Council of National Defense, and the President made it a separate agency in May, 1918. It surveyed and sought to arrange the whole industrial field under the plenary powers conferred by the President and Congress.

Functions of the War Industries Board. In his letter appointing Mr. Bernard M. Baruch to the chairmanship, President Wilson stated that the functions of the Board should be:

> (1) The creation of new facilities and the disclosing, if necessary, the opening up of new or additional sources of supply;
>
> (2) The conversion of existing facilities, where necessary, to new uses;
>
> (3) The studious conservation of resources and facilities by scientific, commercial and industrial economies;
>
> (4) Advice to the several purchasing agencies of the Government with regard to the prices to be paid;
>
> (5) The determination, wherever necessary, of priorities of production and of delivery and of the proportions of any given article to be made immediately accessible to the several purchasing agencies when the supply of that article is insufficient, either temporarily or permanently;
>
> (6) The making of purchases for the Allies.

The essential nature of the Board was defined by Mr. Baruch in an address before the War College, when he said:

> The War Industries Board was a method of control devised by the President to equalize the strain placed upon the American industrial structure by the war. It endeavored to stimulate and expand production of those materials essential to the war programs and at the same time to depress and curtail production of those things not of necessitous nature. This was done by regulation in consonance with other executive branches of the basic economic elements: (*a*) facilities, (*b*) materials, (*c*) fuel, (*d*) transportation, (*e*) labor, (*f*) capital. The method of control was through a preference list upon which were placed those industries whose output was essential to the war's progress. The priority indicated by the preference list was the master key to the six elements named.

Relation of the War Industries Board to the War Department and other Government agencies. The Board was an executive authority. Its policy was one of cooperation with the various Government Departments. Its decisions, however, were practically mandatory with

regard to other Government agencies. Order was only brought out of chaos after the Army began to route its needs through a section of the War Industries Board, and the Navy, the Shipping Board, the Railroad Administration, and the Allied Purchasing Commission did likewise.

The Board made priority rulings regarding transportation and they were followed out by the Railroad Administration. The Fuel Administrator distributed fuel on the ruling of the Board. The Treasury would not permit the raising of money for any industrial or financial operation unless it was approved by the Board. The President issued an order that no commandeering should be done by the Army, Navy, or other agency without the approval of the Chairman of the War Industries Board.

Requirements (Clearance Committee). If it had been possible to prepare a bill of requirements covering our military needs before our entry into the war, unquestionably it would have saved many millions of dollars and much of the confusion which resulted from the lack of such information. However, it is extremely doubtful whether military requirements ever can be determined in advance of war, and certainly they have not been in our past.

At the beginning of the war the various supply departments of the Army, as well as the Navy and other agencies, were purchasing supplies in competition with each other. In addition, the principal Allies were competing as buyers in our markets. All contributed to the difficulty of forming a program of requirements.

The first effort to bring order out of the confusion was the formation of a Clearance Committee having representatives from the Army supply departments as well as other purchasing agencies of the Government. This committee prepared a Clearance List setting forth those materials in which a shortage was believed to exist, and Government agencies were required not to place orders for any such materials without first having those orders cleared by the committee. The object was to prevent placing orders where there was congestion and where they would interfere with the fulfillment of other orders of equal or greater importance and to prevent abnormal rises in prices. The method was by discussion and agreement between the respective interests, each of which was represented.

Priorities Division. The effort to provide for the simplification of supply through clearance lists and clearing orders failed to get at the root of the confusion. A new method of control was invented by which one body of officials sat in judgment to determine the sequence in which materials should be manufactured and orders filled. It was known as

the Priorities System and become the most characteristic feature of the whole scheme of war-time supervision over the industrial forces. The priority function developed as a result of a multitude of manufacturers asking which orders they should fill first. To begin with, the priorities committee issued preference policies without binding effect, and the great possibilities of the system, and its necessity as a cure for the prevailing confusion, were not fully appreciated, nor its full application believed to be authorized, until March 4, 1918, after which time priority rulings were given finality by the President's direct authority, and they became most effective. Every manufacturer affected knew that if he did not comply with the priorities "requests" of this division of the War Industries Board, his supply of fuel might be cut off, his materials and supplies might not be received for shipment, or even his establishment might be seized by the Government. Very few occasions were found where it was necessary to secure compliance with "requests" by the use of any particular enforcing power.

Facilities Division (Resources). The statistical data in existence at the beginning of the War were not of much help in discovering resources to meet the requirements of war. Accordingly, the efforts to discover resources, as well as the effort to develop and convert them, were closely related. Before our entrance into the war the purchases of the Allies had caused extensive development in many great industries, but it was important that the Allies should not be hindered by our entrance into the war. The problem was to provide for our own needs without interference with the Allied program. This was done in many instances by the creation of new facilities, but in most instances it was accomplished by the conversion of existing facilities to new work. Factories making watch springs could make time fuzes; plants making steel rails could forge shells; automobile factories could make airplanes.

The Resources and Conversion Section of this Division collected information as follows:

(1) Existing facilities for producing direct and indirect war needs, both raw and finished products;

(2) The extent to which these facilities were occupied and the extent to which they could handle additional orders;

(3) The feasibility and extent of expansion if a plant were overloaded or, as an alternative, the desirability of transferring some of the load to other plants;

(4) Existing facilities not employed on war work but capable of it;

(5) Facilities whose production would be curtailed on account of war and the extent to which they could be converted to the production of war needs;

(6) The existence of available labor, of new sources of raw materials, of unused power facilities, etc.

Conservation Division. Some of the more important functions of the Conservation Division were as follows:

(1) To secure all feasible reductions in the number of styles, varieties, sizes, colors, etc., of the several products of the industry in question, and thus to effect economies by reducing the number of operations and the amount of reserve stock which had to be carried;

(2) To standardize sizes, lengths, widths, thicknessess, weights, gauges, etc. in such a way as to preserve sufficient strength and durability, but to effect economies in materials and labor;

(3) To reduce the waste of materials in manufacturing processes generally;

(4) To secure economy in packing by eliminating the small and odd sizes.

Price-Fixing Division. In normal times supply and demand control prices. War demands, however, are absolute and not related to prices. Immediately after our entrance into the war prices soared out of all relation to the costs of production. Capital was turning to speculation and manufacturers were uncertain in purchasing raw materials. "Cost plus" contracts brought adventurers into the field of production and prices were forced further out of joint, while actual work and production were seriously hampered by the confusion. Conditions indicated further rises for the future unless a radical cure could be found.

Finally in July, 1917, the President announced that the Government was determined to make its purchases at reasonable costs and that prices would be fixed if necessary. He also declared that if it become necessary to fix prices for the Government they should also be made to apply to civilian and allied purchases, or these would advance higher than ever. This announcement caused a decline in prices, but the instability remained. There was a growing discontent on the part of the public as they saw prices mount while men joined the ranks and family budgets were reduced.

Price control was adopted piecemeal, commodity by commodity, as experience dictated. Congress did not grant to the President, nor to any other agency, blanket authority to regulate prices, and the bases in law for the different regulations were varied and in some cases

doubtful. For this reason the method, but not the extent, of price fixing was circumscribed.

Nearly all price schedules were fixed by negotiation and agreement between the Government and the trades. The power to enforce adherence to the schedules was abundant, though never direct. The requisitioning power placed the Government in a position to address producers virtually as follows: "These are the prices to which the Government will agree; if you are willing to enter into a voluntary agreement with us, you will be paid these prices, but if you refuse to do so we will be compelled to commandeer your output or your plant and give you just compensation therefor, as provided by statute, and these prices are the just compensation for which the statute provides." In addition to the requisitioning power, the Government had other equally effective weapons such as control of priorities, control of railroad transportation, and control of fuel supply.

Labor Problems Division. The war administration of labor was largely handled outside of the War Industries Board. The war was over before any scheme for wage fixing was inaugurated, but the necessity for it had become very evident and plans had been evolved and without doubt would have been applied had the necessity continued. The principles of priority, price fixing, and conversion would have been applied to labor as they were applied to materials.

There are perhaps 20,000,000 men of working age in the United States. One-fifth of these were removed from productive employment, and at the same time industry was rapidly expanding to meet war demands and calling for skilled and unskilled workman by the tens of thousands. The shipbuilding, ordnance, airplane, and other new industries needed skilled workmen far in excess of the supply. The natural outcome was that various industries began competing against each other to attract laborers by offering more and more favorable conditions and wages. This resulted in a labor turnover and an inefficiency which was rapidly becoming a menace to the war program. The labor problem, then, was to find means to prevent the wasteful turnover of labor and to guide the flow of labor from less essential to more essential industries. It was not until later in 1918 that devices were perfected and were beginning to bring about improved conditions.

As the drafting of men into the Army continued it became increasingly necessary to take them from industries where they could best be spared and the war production program be least disturbed. When the Armistice was signed the Priorities Division was engaged in assisting

General Crowder with his "work or fight" regulations under which there would have been no more private chauffeurs, no more traveling salesmen.

The Foreign Mission. This mission was formed to extend and make more effective the work of the War Industries Board as regarded those commodities whose principal sources were outside the United States and to assist in coordinating the demands of all of the Allies in order that priorities and price fixing might be effectively and justly administered. When the war ended international nitrate and tin executives had been formed, and others were in process of formation to provide and control jute, rubber, manganese, tungsten, platinum, flax, leather, wool, and other commodities.

The Inter-Allied Purchasing Commission. This division of the War Industries Board bore the same relation to the purchasing agencies of the Allies as did the War Industries Board itself to the various purchasing authorities of the American service. The agents of the Allies attended to their own purchases just as the officers of our War Department did. The commission told them what they must do and what they could not do, but did not pass on the validity of their requirements any more than the War Industries Board sought to tell our Army what sort of equipment it should have. The Inter-Allied Purchasing Commission, however, did regulate the flow of credits from the Treasury and thus gave the War Industries Board a power of direction that it did not have over the purchasing agents of our own Government.

Commodity Sections. The Commodity Sections have been called the backbone of the War Industries Board. All the other administrative or functional divisions were based on them. It was from the commodity sections that the Chairman of the Board and the various functional divisions on the one hand, and the Government Departments, the Allies, the public, and the industries on the other hand, could draw all the facts, figures, ideas, and contrivances for any situation. The commodity sections bore an intimate relation to some three hundred and fifty industries which had their ultimate representation in the War Service Committees of the Chamber of Commerce of the United States. The sections supplied the Board with controlling information regarding all American industry not controlled by the Food and Fuel Administrations, and they promptly transmitted to all industries the behests and requests of the Board.

Each commodity section was composed of members who were experts in that branch of industry with which the section was concerned. In addition there were representatives from each purchasing agency of the Government.

Conclusion. There should be a peacetime organization based on the experience of the war-making agencies. It should embody divisions and sections similar to those found desirable by the experience of the War Industries Board, so that in the event of an impending war it would be possible to create promptly an organization of all of the industries of the nation and quickly make available for the Government all of their resources.

Effort should be made to develop production of manganese, tungsten, coal by-products, and all such raw materials as are usually imported but which can be produced in quantity in this country. Persistent effort should be made to develop production of nitrogen and its substitutes in the United States.

Certain industries should be encouraged to mantain skeleton organizations from which the manufacture of war material, particularly munitions, ordnance, and aircraft, can rapidly be developed.

Special facilities developed by the war should be kept alive by continuing small orders for their peculiar military products, and there should be kept on hand the necessary jigs, dies, and equipment required for the manufacture of munitions.

In another war the principle of the selective draft should be applied to dollars as well as to men. Industry should be persuaded to cooperate of its own initiative as in the World War, but behind all industrial mobilization should be the formally adopted principle of conscription, which is the direct inference of the conception of modern war as a war of all persons and things. Resources and facilities should be used with as little thought of profit as human life is used.

In the next war all industry—the whole economic life of the nation—as well as human life should be conscripted. Nothing undermines the will to war more rapidly than the popular conviction of widespread profiteering and exploitation.

REFERENCES

American Industry in the War—A Report of the War Industries Board, by Bernard M. Baruch, Chairman.
Industrial America in the World War—by Grosvenor B. Clarkson.
Taking the Profit out of War.—Atlantic Monthly, February, 1926. Article by B. M. Baruch.
Speech of Hon. J. Mayhew Wainwright of New York.—In Congress, Saturday, March 22, 1924.
Lecturers and Conferences.—The Q. M. Corps School, Officers' Course, 1926-27.
Elimination of Waste—Simplified Practice—U. S. Department of Commerce.

Elements of Military Psychology

By COMMANDANT TABOUREAU

Extracts translated by
Major P. V. Kieffer, F. A., from *Revue d'Infanterie*

MORALE IN WAR

I. IMPORTANCE OF THE MORAL FORCES IN WAR

HAS the enormous development of material means changed the conditions of battle to such an extent as to force a revision of Napoleon's celebrated maxim; "In battle success is due to three parts moral force and to one part material force."

It is popularly and superficially believed that the means of an army should be concentrated almost solely in the perfection of its equipment, morale and the number of combatants having become secondary factors. The arguments which are presented to show that victory will depend above all on materiel are:

"One does not fight bare-chested against machines";

"The valor of the infantry does not disturb the artilleryman, who shells him at a range of 20,000 yards";

"The morale of a squad won't stop the tank which smashes it";

"The best morale spends itself against barbed wire."

First, let us ask, what is the part of morale in the final triumph of one nation over another? Do we mean, by "victory and defeat," the total extermination of the conquered nation by the victorious nation? No! History has never given us such an example. The defeat of a nation, no matter how complete, means that a group of a hundred million individuals, for example, considers it necessary to accept the conditions of its adversary, no matter how severe, because two or three millions of the people are dead. The ninety-seven millions remaining no longer wish to suffer or risk death; they are beaten because they are demoralized. Victory and defeat of a nation are then moral facts.

Success on the battle field follows the same law. The victorious side is not necessarily the side which has suffered less losses, but rather the side which maintains the longer its energy, its courage, and its willingness to fight. On the other hand, the conquered is the side

which, at a given time, gives way to discouragement and fear, and refuses to continue the fight. All history witnesses this truth. The war once more proved it; we might cite many battles—Verdun, for example—where we were victorious in spite of losses greater than those of the enemy. It is always true that the beaten is "he who believes himself beaten" and first gives up the idea of attaining the objectives of its decision. On the battle field, victory is then, in its last analysis, also a moral fact.

These elementary truths are rarely disputed, and the problem before us is to determine the precise importance of the moral forces in the factors of success, and if they are as necessary now as formerly to the combatants.

To go back to definitions; what do we mean by "moral forces"? According to the innumerable military writers who have discussed the question, we understand the expression "moral forces" to mean the sentiments which urge the soldier to fight with bravery and to endure the fatigue and suffering of war. These sentiments are: patriotism, sense of duty, honor, love for the flag, discipline, devotion to the commander, devotion to comrades, esprit de corps, hatred for the enemy, love of danger, love of glory, etc. All these "military virtues" fortify the soldier's ability to face the risk of death.

With that definition in mind, we will first state the advantage of material means. The elementary problem of the battle field is to destroy the enemy without being destroyed yourself. A soldier equipped with means of attack and defense which are superior to those of his opponent, other things being equal, is more willing to fight than is his opponent; materiel promotes morale. On the contrary, the soldier who realizes the inferiority of his arms, who realizes that his opponent, better equipped than he, can kill him without risk, is discouraged from the start; the lack of materiel lowers morale. Superior materiel, in permitting the soldier to destroy his opponent without risk to himself, is thus a supplement to morale.

A well-equipped force can accomplish its mission—the defeat of the enemy—with less exertion than when its materiel is inferior. We might even imagine the case where one side, to be victorious, would have no need at all of moral force, such as we understand this force today. If, in fact, scientific inventions become such that a small number of individuals equipped with prodigious machines—electric or chemical—can annihilate the hostile armies and populations with no risk to themselves whatever, such "combatants," without doubt, will accomplish their task without any need of the sentiments which actuate the soldier of today.

It is often in speculating on these hypotheses pertaining to the domain of "the marvels of science" that people claim the preeminence of materiel in the wars of the future. But we have not reached that point; we may even wonder whether we will ever reach it. Every new weapon adopted by an army is soon adopted by the hostile army and consequently becomes equally dangerous for both adversaries. Whether it be in artillery, in invasion, or in gas, defensive measures are perfected as fast as offensive means become more dangerous.

It appears that the time is not near when men who make war will run no risk; we may even doubt whether it will ever arrive. In fact, a nation deprived of war materiel, which, seeing directed against it an army equipped with formidable devices, would not engage in battles in the open which it would be sure to lose; but such a nation, if it has moral force, would find other methods—permanent insurrection, for example, which nevertheless would inflict losses upon its dominator.

A state of war between two nations presupposes that each of the belligerents believes that he can exercise a destructive action on the enemy. No matter how perfect its material means may be, each side will always need a certain degree of moral force to conquer the apprehension which the arms of his opponent will cause, even if those arms be only knives and clubs.

If we examine the realities of modern combat, we see that, in fact, the risks of the combatant become greater and greater. Victory cannot be assured unless there are individuals who have the will to confront peril. It is men, and not machines, who advance on the enemy, hold the trenches, man the airplanes and submarines, are the targets of projectiles, and deliver the assault. The relations between moral force and material means seem then to be similar to those between the human spirit and the instruments of which it makes use.

The materiel of war is a powerful means for causing the demoralization of the opponent and for heightening the moral forces of him who employs it, but, in the last analysis, it is moral force which assures victory since it is that force which "gives life to the employment of the material means." . . .

The extraordinary development of the materiel of war should not veil the eternal reality of war, which is and always will be a "fight of wills." No doubt a nation, intent upon conquering and at the same time anxious to conserve the blood of its citizens, should develop to the maximum its war materiel; but it should be no less intent in pushing with the same perseverance and method the development of the moral force of those who must manipulate that materiel.

Though the soldier be in an airplane, in a tank, in a submarine; though he be equipped with flame-thrower, machine gun, gun with a range of a hundred kilometers; though he be protected by armor, gas mask, or a casemated work; his combat value will reside, always and primarily, in his ability to confront hazards and in his will to destroy the enemy—that is, in his moral forces.

II. Why a Commander Should Know Psychology

How do the moral forces operate in an organization? What study, by its teaching, can assist the officer in acquiring a method of command which will maintain and heighten morale? Psychology!

When one man proposes to require the obedience of other men, he is obliged to consider by what means he will induce their obedience: he applies psychology; that is, he makes an effort to know the character, sentiments, ideas, habits, prejudices, etc., of his subordinates in order to find the most effective way of establishing authority. The art of command is nothing but a constant application of the laws of psychology. . . .

The army should be interested in psychology as much as in any other calling. Some imagine that attention to the maintenance of morale and to the search for suitable means for its growth is of recent origin. This is a great mistake. The great leaders of antiquity were marvelous psychologists; . . . they maintained and raised the morale of their troops by means which would not be refused by leaders of modern times. . . .

Psychology may be studied from different points of view. It is apparent that the military leader will not approach the study of the inner man (soul) from the same point of view as the philosopher or literary man. . . . Often study from these points of view sap the qualities of men of action; we are familiar with the gullibility and the timidity in real life of some men of great intelligence lost in the fog of abstraction.

But there is another way to be a psychologist: that of the man who exercises an influence on his fellow-men. He should have an essentially utilitarian conception of psychology. . . .

The leader who gives an order is somewhat like the pianist who produces different sounds as he strikes the different keys of the piano; he also must manage an organism which has a whole keyboard. It is the man, and the "keys" are called sense of duty, fear of punishment, honor, interest, etc.; as one or another of these tendencies are excited, the subordinate will react in different ways. But the leader—

like the musician—will only become a master of command in first studying "his instrument," which is the man.

How many leaders still have a tendency to ignore this truth! All the mistakes in leadership of some of them may be attributed to lack of knowledge of psychology; all their orders, by a sort of unhappy chance, rasp, excite, and irritate their subordinates; all the measures they take are unhappy, badly received by those who must execute them; everything such leaders say is in opposition to the state of mind of their hearers—their words are those which had better not be said. For example, such leaders choose the instant when a subordinate happens to be particularly willing to threaten him or bitterly to criticize him; on the other hand, they may exhibit an unreasonable tolerance for some incorrigible character. Such leaders discourage their subordinates; they are spoken of as lacking tact, intuition. They are grudgingly obeyed.

The leader should make a continuous application of psychology in order to exert the greatest influence over his command. He knows that, varying with the individual and the circumstances, he will secure obedience in appealing to one or another of their sentiments. Not only does he in this way picture to himself, as accurately as he can, the inner man (soul) of his subordinates, but he develops an ability to utilize their varying tendencies by presenting to them ideas and concrete motives which he knows to be effective. Such a leader does not often have to argue in order to command intelligently; he discovers by "tact," "instinct," and "intuition" the details of leadership which produce the best discipline in his command.

How can we acquire this tact which makes the leader a master in the management of men? First of all, by experience. If leaders who have attained a certain age frequently exercise an authority which is accepted with greater ease than that of young officers, it is because they have a deeper understanding of psychology. By long observation, over the course of their careers, they have learned to know the human heart and how to move it. Even though they often deny it and though they may never have opened a book on psychology, they are psychologists.

If you question them, they often pretend to despise theory and are likely to lead you to believe that they found in their cradle the gift of leadership. Sometimes they even are unable to formulate any rules which have served them in the exercise of their leadership; in their opinion their handling of their men was nothing complicated, "it was just good sense." Yes, but they have perhaps taken years in acquiring this good sense; and, in fact, it is made up of exact knowledge accumulated by reflection and observation, which have passed into his reflexes.

Some particularly gifted minds may even considerably shorten the period of study in which the leader acquires experience; they embody these qualities of the psychologist which go to make up the able leader. So, in the late war, many officers had a remarkable knowledge of how to handle their organizations from a moral standpoint, even though they had no knowledge at all of theoretical psychology. . . .

The faculty of leadership is developed, like our other faculties, by exercise and personal effort. In the same way as the future tactician of the battle field develops himself in studying tactical problems in books and on maps, the leader of men should train himself to know and to lead men by study of psychology.

Certainly, experience and activity in real life remain the great means by which one becomes a true leader of men: *"C'est en forgeant qu'on devient forgeron,"* and, if we had to choose between knowledge dug out of books and knowledge gained by experience, we would not hesitate; the latter should be preferred.

But, at the same time, theoretical study has great advantages. Experience, by itself, is a very slow method of learning; it entails many deceptions, it requires many mistakes in leadership of an organization to find out that some method of discipline is bad. How many times have we not heard officers say: "Ah, if I had known, when I was younger; how many mistakes I would have avoided!"

The study of theoretical psychology shortens that period of groping where the leader seeks more or less consciously to adopt a good method of leadership. Furthermore, theory illuminates practice. A leader who has made a study of the laws of human action makes more fruitful observations in every day life than does the leader whose mind has not been initiated into psychology; his "common sense" develops more quickly because he knows how to associate the facts which he observes with general laws.

The officer who is ignorant of psychology, or who scorns it, runs a great danger of never perfecting his leadership; he accepts once for all that the management of men is based on one or two rules which chance has placed in his hands and which he applies perhaps bunglingly without ever thinking of verifying them.

The study of psychology is then useful to an officer because it gives him rules and principles which guide him in his problems in the management of men in the same way as the tactical principles guide him in the solution of tactical problems. But here again, as in tactics, we should not demand of psychology rules and formulas all cut and dried. In the same way as books on tactics can not give schemes applicable in every case and cannot produce mathematical success, neither has psy-

chology the pretension to furnish stereotyped and guaranteed methods. No matter what science he studies, the student should aim principally at acquiring a state of mind which prepares him to act. By the study of psychology, we should above all attain the development of a faculty of intuition which subtly prompts the leader as to what action he should take and what words he should speak in order to exert a real ascendency over his men.

Young and inexperienced officers sometimes are, with respect to their organization, like the layman with respect to a page of music—they do not know how to read the souls of their subordinates. The phenomena of morale exhibited by their organizations are incomprehensible to them, or rather they see only the superficial aspects of these phenomena, like the layman sees on the page of music nothing but black marks on white paper. Such young leaders realize vaguely that their organization is boiling over with discontent, that discipline is mediocre, enthusiasm nil; but they cannot distinguish the causes of these conditions in the collective soul of their organizations; so when they attempt to remedy these conditions, they stumble about, hand out indiscriminate punishment, reward, and praise, making half-hazard appeals to the most contradictory sentiments. They are lacking in a knowledge of psychology.

On the other hand, the officer who, by observation, reflection, and reading, has oriented his mind towards the study of psychology knows how to read the soul of his organization; the gestures, the speech, the facial expressions, a thousand little indications, the significance of which would have escaped another, are to him like a plain language which indicates to him the morale of his men.

Note that psychology is not limited to knowing the individual; it extends to the study of the laws which govern collective men (groups), and it is perhaps in that branch that it furnishes the most positive ideas to the officer. In fact, the manner of organizing and assigning work in a group and the method of guiding opinion in a group, which have such a remarkable effect on the state of mind and actions of the individual, are psychological phenomena which more nearly follow precise laws and upon which we are able to get a grasp.

Under these different considerations, psychology should be viewed as a most important military study, for it is perhaps as a result of meditation on the human heart, made in the period of study in time of peace, that the commander will have the joy of realizing in battle that he has the "gift of leadership," that is, that his men have confidence in him and are ready to follow him with enthusiasm wherever duty calls him to lead them.

NOTES ON PSYCHOLOGY APPLIED TO THE MANAGEMENT OF MEN

The role of the officer . . . is to induce the action of men. Either in training or in actual command his action is definitely reduced to causing his subordinates to assume a series of attitudes and movements which he himself desires them to assume. The officer in this way acts like an "engineer" of human activities; it is he who is charged with releasing the subtle impulses thanks to which a man conducts himself as a disciplined and courageous soldier.

But what is the intimate nature of these impulses? What are the laws which govern their functioning? Put in another way, what are the psychic forces which control human activity? It seems that an officer should be able to give at least an approximate answer to these questions, because the more he knows these psychic forces, which he must control, the better he is prepared to fulfill his function.

I. Tendencies, Instinctive and Hereditary

Summary analysis of man shows him to be a being endowed with a multitude of "tendencies" which urge him to perform all kinds of actions; he can walk, eat, fight, etc. We can then imagine that each of our ways of doing things—every act—is determined by a "tendency," which appears to be made up, physiologically, by an association of nerve cells which transmit a nervous flux whenever the tendency operates; at least, that is the way the psychologists put it. In classifying these tendencies, let us see what influence the officer can have on each class.

In the first place, we find a primary layer of fundamental tendencies, for example, those which urge a man to walk, eat, talk, sleep, etc. These are the ones which are the most deeply rooted; they are called *instincts.*

Next are the tendencies which have been created and developed by the influence of environment, climate, race, and the effects of natural selection; as, certain races are aggressive and warlike while others are not adapted to war.

We may recognize also the tendencies which the individual possesses by direct or immediate heredity; thus there are families of musicians, of mathematicians, and of soldiers, in which aptitude is transmitted from father to son.

Over all these, strongly incrusted in the soul and which constitute the foundation of his character, the officer has relatively little grasp. However, he should apply himself to recognize them in order to consider them in his methods of leadership and command. A colored troop can not be commanded in the same way as an educated body of

Frenchmen. The leader should be master of different methods of training and command which apply to the individuals on whom he must impose his will.

An officer will often apply the knowledge which he has of the instinctive tendencies of a certain individual in assigning him duties consistent with his character. Many men, for example, have a love of adventure which makes of them valuable soldiers. These "dare-devils" love to face danger . . . and get a certain agreeable excitement out of it. These were the men who were conspicuous in raids in the rear, but characteristic acts of violence on their part, at other times, frequently had to be overlooked.

II. Acquired Tendencies or Habits

These inborn tendencies are not the only ones of which man makes use. As he develops, he acquires new tendencies which he needs in order to live in the environment and under the conditions of his situation. The farm boy, made into an officer, must adapt himself; that is, he must acquire the tendencies to live a sedentary life which his ancestors did not have. The overindulged child of rich parents does not cultivate the same tendencies as does the child brought up in modest circumstances.

These acquired tendencies, which are developed either by environment or by deliberate training, are what the psychologist calls "habits." Upon that class of tendencies the officer can have considerable influence; they are the domain in which he exercises his function of teaching, education, and leading, and this is a vast field.

In fact, habit, that is to say the predisposition to execute particular acts, plays a formidable part in human activity. All our manners of speech and action, all our technical skill, all our professional ability, . . . all our vices, and even virtues, are habits.

"Man," says William James, "is a walking bundle of habits"; and adds, "habit is a second nature. . . ." The habits acquired by education inhibit and smother, during life, the greater part of the impulsive and natural tendencies. Ninety-nine per cent of our activity is purely automatic and habitual, from getting up to going to bed. The way we put on and take off our clothes, the way we eat and drink, our forms of address, acts of politeness, and even the forms of our every day speech, are parts so crystallized by repetition that we might almost call them reflex actions. For every kind of impression, we have a cut and dried and automatic solution already to spring.

It is apparent in education and training, whether it be to produce a perfect dancer or a good soldier, the laws of the formation of habits are constantly utilized.

III. The Laws of Habit

a. First Law—Habits are formed by repetition. Whatever tendency we wish to develop in a man, to stand fatigue, discipline, cleanliness, courage, etc., we must get him to execute the acts which are the expression of these tendencies. . . . It is exercise and training that form and develop the association of nerve cells which constitute the basis of our most complex habits.

Action has a preponderant educational value; if the soldiers of the Great War were incomparable, it was because they learned their business in performing concrete acts and because they had the occasion to practice—in concrete acts—the military virtues.

The officer, in his role of educator, should then above all strive to induce action in his men by placing them in situations where they will be obliged to translate into concrete acts those tendencies which it is desirable to have them acquire. Thus we cannot develop in a man a tendency of devoted and intelligent initiative by talks alone showing him the use of and need for initiative. Such talks usually produce a fugitive impression in a man's brain. He must, in addition, be forced to produce initiative by being placed in a situation where he can imagine for himself acts of initiative. Give him a job, give him some definite responsibility; in this way his capacity will be developed.

From this first law, that habit is formed by action, it follows that as far as possible we must suppress the occasions or situations where a man may acquire an undesirable tendency. . . . Every act is the beginning of a habit, and if it is the expression of an undesirable tendency, its accomplishment and repetition must be prevented. Thus we note that a certain soldier is becoming undisciplined, lazy, skulking, shifty, prompt action should be taken to stop his progress in this direction; do not allow him to confirm bad habits by repetition—whether they be physical or moral; don't put off corrective action, for later will be "too late"—the law of habit will have interposed.

b. Second Law—Habit facilitates execution of action. Everybody has remarked the facility which old workmen have at their trades; they develop at times an ability to execute their habitual actions "without thinking." Their action is said to be automatic.

Automatism has considerable advantages. As it is made up of a series of reflexes, it is exercised, without the participation of the conscious mind, with the accuracy of a machine. It is in this way that good horsemen or good cyclists ride horseback or on a bicycle without having to keep in mind the cycle of physical effort which they must

exert. Habit has developed in them a coordination of reflexes, an "adaptation" very superior to that which could be produced by thought.

Consequently, we should strive to transform the soldier's technique into reflexes. When a machine gunner, for example, gets fire well and accurately without needing to think about his detailed actions, his fighting value is greatly increased. We know that a soldier on the battlefield is often so agitated that he cannot gather his thoughts; his will, disturbed by the thousand emotions of battle, refuses to respond; if he has not engraved in his nerves, his muscles, and his brain cells the habits of marching, firing, throwing grenades, etc., he is incapable of logical action.

The habit of preparing automatically the actions of a soldier is then a precious one; it permits the soldier to act with effect, even when his conscious will fails. . . .

c. Third Law—Every habit seeks satisfaction. Smokers, who on seeing a pack of cigarettes, cannot prevent themselves from smoking, are well acquainted with the tyranny of this law. As a result, a man does with facility—and with joy—the actions which have become a habit. Invite someone to take a thirty-kilometer tramp with you; if he is not in condition he will scowl at the proposition, but if long walks are his habit he will find your invitation agreeable.

Habit, in predisposing us to the performance of certain actions, creates a desire to execute them. We can verify and apply this law in many ways.

If we are in the habit of solving tactical problems, we perform with a vim a job which is the application of this knowledge; on the other hand, if we are given a task which we have not the habit of doing, it appears very disagreeable.

Soldiers in whom this automatism has been developed (cooks, supply sergeants, clerks, etc.) often prefer to be overwhelmed by their job of specialist, rather than to be turned out for a half hour's drill.

The development of professional reflexes reacts on his mentality. The more aptitude a soldier has at his duties, the more you will find in him a disposition to conduct himself well as a fighter. When he finds in his very body and soul the support of numerous habits which demand satisfaction, the effort which we require of him to win will be accepted by him with greater ease. The stronger these habits have been implanted the more they will require to be satisfied. *"Le pouvoir engendie le vouloir,"* say the psychologists. That is why the development of automatic reflexes justly holds such a prominent place in the training of the soldier.

IV. The Use of Habits

The movements which are the expression of an instinct or of an acquired habit may be performed without requiring any attention, even without consciousness. Thus, when we stumble in the street, we immediately put out our arms for protection without having to reflect. Most of the movements and attitudes taken up in riding, handling a gun, singing, playing, skating, etc., are automatic in character. The same is true of the thousand little familiar movements which we make —closing a door, opening a drawer, mechanical playing with an object. All these acts are the expression of habits and they are caused by sensations, that is, by simple excitation of the organs of touch, sight, hearing, etc.

Often, moreover, they are set in motion by the words of others, which act as a suggestion. Everybody knows the story where a drunk and infuriated soldier in barracks had pulled out his saber and threatened his comrades. A noncommissioned officer appeared on the scene and commanded in a voice of authority: "Attention! Return saber!" and the drunk automatically obeyed.

Without counting too much on such perfection, the point is to know that often orders act on the soldier in the form of suggestions; he executes them without calling on his faculties of reflection or will. This is particularly true on the battlefield, as the psychology of battle has shown.

Naturally, there are degrees in the state of suggestibility of the soldier. At times the action is really performed without any participation of the personality. But in most cases, this automatic obedience has the soldier's consent in the sense that, once for all, he has put himself in the frame of mind to allow himself to be directed and led by his leader without taking the trouble to reflect over each action or movement he is ordered to execute. The man has confidence in his officer; this is all he requires to place himself spontaneously in the mental and physical attitude which is conducive to automatic obedience.

V. Apperception

Up to this point, we have considered the tendencies—whether they be hereditary habits or acquired habits—as a simple physiological organism which is developed by use, in the same way as are developed the legs of a cyclist. We must now consider the tendencies under their mental aspect, which is the aspect they have when we analyze our inner self.

There are occasions when the tendency is removed from the domain of physiology and becomes a matter of consciousness. The phenomena which are produced, and of which we are aware in our mind, are divided by psychologists into two classes:

a. Affective conditions: emotion or desire and sentiment. If the tendency to eat is suddenly brought to our attention by a feeling of emptiness, we say, "I am hungry," and we experience a particular condition of the inner man. This violent desire to satisfy a tendency is an emotion. The tendency put into play may be one of a moral order; we see an injustice done in our presence, an act of disloyalty or brutality, etc., which awakens in us the tendency to rebuke the improper action, and we say or think: "That is shameful!"

When the emotion is less violent and we experience a lasting desire like love, friendship, hate, this feeling which we experience is called a sentiment.

b. Intellectual conditions. The second class of phenomena produced by the tendencies when considered from a standpoint of consciousness includes the intellectual conditions which enlighten us and guide us in the search for appropriate means to satisfy our sentiments and emotions.

We say, "I am hungry," when we feel the desire to eat. We say, "That is shameful," in witnessing an immoral act. Immediately our mind, in both these cases, gets to work to find a means for appeasing the hunger or for rectification of the injustice. Everything we imagine to satisfy our desire, the procedure to take, the words to pronounce, the ideas of results to obtain, are intellectual conditions.

Thus we enter into a more complicated domain, which is that of the will and upon which we must try to get some light in order to deduce useful laws, because we are well aware that a soldier entrusted to us is not always a "bundle of tendencies" which are put into play mechanically. There are cases—and they are frequent—when the man says: "I wish to do so and so." What is it that transpires in the mind of a man when he says, "I will"? If we could get our men to say, "I wish to act like a disciplined and courageous soldier," what a magnificent result we would obtain and how proud of it we would have a right to be.

VI. The Act of Volition

Let us make an analysis of the act of volition.

A smoker sees on the table a pack of cigarettes; mechanically he takes one and lights it, but immediately the idea flashes through his

mind: "I ought not smoke, the doctor has forbidden it." Two tendencies, one expressed by the desire to smoke, the other by the desire to preserve his health, struggle in the mind; the result of this struggle will be an act of volition.

The preparatory condition, then, to an act of volition is a conflict of tendencies. A voluntary act supposes a battle within our souls; the opponents are called desires or emotions; each of these affective conditions (desires or emotions) summons the aid of the intellectual condition to enlighten it and better to suppress the adversary.

Let us examine this exhibition of conflict in a rather complicated case. Take, for example, any solid man who one fine day, reads on the walls of his village an order of mobilization which requires him to rejoin the army. We will eliminate, for the present, the exacting collective influences. For our purpose we will consider only the conflict of tendencies brought into play by the reflections of the individual.

We can suppose that what will take place within the soul of that man will probably be about as follows. The first tendency brought into play will be: "I will do my duty." This awakens the desire to start, hatred for the enemy, fear of being dishonored if he does not go, the idea of packing up, etc. But immediately another set of tendencies begin to oppose the first set; the man thinks: "Maybe I will be killed, or crippled. What will become of my wife and children? What suffering and weariness they are driving me to!" There is a conflict of tendencies, the shock of contrary desires.

This conflict—which the psychologists call deliberation—consists in confronting each of the conflicting ideas with a third element, which in the conscience plays the part of arbiter and which we call the personality of the individual.

The personality—the "I"—is a composite of tendencies, which, in the course of time, have dominated us. Each man has his characteristic "I" which makes him different from his fellow. Paul, patriot, has not the same "I" as Pierre, anti-patriot; the proof—if you say to Paul: "Desert!" there will be brought into play a whole collection of tendencies which will protest; while if you make the same proposition to Pierre, anti-patriot, he will accept with pleasure.

We see now why a reservist will accept with enthusiasm the idea of going off to war or will take measures to avoid his duty to his country. The solution which he will give to the problem put up to him will depend upon his "I" which he has previously built up.

If education has implanted and developed in him the tendencies of honor, love of country, hatred of the enemy, etc., when the idea of

going to war is presented, it will find in the previously formed personality of the man strong allies which will make him say: "I will fight." If, on the contrary, a bad education has developed in the man tendencies towards egotism, ease, fear, etc., the soldier will say: "I want to avoid danger."

Although this outline of the act of volition does not consider many of the realities which will come up in each case, it serves to indicate the method to follow in exercising a moral influence on a man. We should, by education, fortify the tendencies which are characteristic of a good soldier, in such a way that, when the day comes when he has to decide whether he should fulfill his duty as a patriot, he will not even have need for reflection to recognize and love that duty; his whole personality will urge him irresistably to conduct himself as a courageous soldier.

VII. The Role of the Sentiments in Human Action

We have seen that tendencies, when they enter the realm of consciousness, that is, when we are aware of them through interior analysis, produce effective conditions—sentiments and emotions or desires, and intellectual conditions—ideas and reasoning. Upon which of these classes should the educator concentrate his efforts?

For a long time it was believed that in order to modify a main conduct, we should principally work on the intellectual faculties: reason, imagination, memory. "Teach people to read, and you will make them just and upright," said a celebrated poet, adding: "Each school opened is a prison closed."

On first impression it seems that in showing a man the scientific reasons why he should conduct himself well, he will do so; and that an intelligence which reasons accurately is invincibly urged to act nobly and worthily.

Alas, these theories, which have been termed intellectual predisposition, were incomplete. Intelligence, that is, our faculty of observation, memory, logical reasoning, is nothing but an instrument which may serve the most detestable inclinations; there are bandits of genius who organize their depredations with the most admirable reasoning. How many men of cultivated mind have at the same time the lowest sentiments!

That is why we must keep in mind the following distinction which is insisted upon by present-day psychology: Our intellectual conditions, of themselves, do not urge us to action; it is our state of sensibility, emotion, and sentiment (affective conditions) which are really the cause of our acts.

The sentiments within us as aspirations, disposition to feel emotions and desires, fix the goal of our activity; they are the ones which urge us: "Love your country, be noble, courageous, hate the lie, hate injustice, etc." It is when we feel an emotion, that is, when the sentiments reach a climax, that we act. We will consider the importance of sentiment by showing its role on the different elements of our mind.

a. Upon our perceptions. We often note that the closeness of attention which we give to anything is in proportion to its interest to our sentiments. At maneuvers in time of peace a soldier observes the terrain with indifference because his sentiments are only indifferently excited and many details escape his notice. This same soldier, put on sentinel duty in time of war in the face of a threatened enemy attack, will examine the terrain with attention; nothing will escape him because his sentiments are powerfully aroused.

b. Upon our memory. We retain better what we are taught as our sentiments sustain our attention. In war, soldiers are taught in a few hours the functioning and operation of certain arms which they have to use the next day in a battle, while in peace the same results could be obtained only by weeks of theory and practice. Thus we see how important it is to interest the soldier in the movements which we wish him to execute.

c. Upon the imagination. Sentiment has an enormous influence upon the imagination. We picture to ourselves events or things as beautiful or ugly as the circumstances make us gay or sad. For example, a soldier, in war, is melancholy. Everything looks black to him, the military situation seems terrible to him; but he now gets a letter from his wife telling him everything is going well at home. Very often such a man will drop his blues; from being a pessimist about the situation he becomes an optimist.

d. Upon our judgment. With what indulgence we regard the faults of those we love! On the contrary, with what severity we judge those whom we detest! Soldiers will pardon a leader for whom they have affection a thousand severities which would exasperate them if committed by a leader whom they detested.

Thus we see that our sentiments have a preponderant influence upon our actions. It is they that, to use the familiar phase, "put the devil in us" in irresistably urging us to action. All men who are capable of energetic and violent action are of an ardent nature in whom the sentiments are master; that is why the leader must strive to develop in his men the affective conditions which will powerfully urge them to fanatic fighting.

VIII. Action Upon Sentiment

The sentiments are developed, like all human faculties, by use. . . . Sentiment is a chronic emotion. Therefore, in order to cultivate a sentiment, the emotion which it expresses must be often experienced. This is why reading heroic stories, applause of reviews, discussing the greatness and the future of France develop the sentiment of patriotism.

How can emotions be awakened? There are several methods.

a. By direct sensation. Nothing moves us like witnessing the actual fact. This is why seeing the devasted areas, visits to the cemeteries along the front, hearing stories of those who have suffered German brutalities incite emotions which, in a Frenchman's will, reinforce the sentiment of patriotism. Those who saw the invasion are less likely to forget our legitimate complaints against the Germans than those who were content to read about them.

b. By esthetic presentation. The educator cannot always put on a real show to exalt his men's sentiments. This is why he so often makes use of esthetic presentation. Conferences, reading, pictures, theatricals, movies, music singing incite in the men repeated emotions which stimulate and develop the military sentiments.

c. By ceremony. The use of ceremony is based on the law of psychology that our conscious conditions are intimately connected with our corporal attitudes; thus when we experience misfortune, if we assume an attitude of sorrow, if we hunch up in a dark corner and mumble over our hard luck, we increase our melancholy. On the other hand, if we immediately go out, walk briskly, and force ourselves to put on a bold front, we decrease our melancholy. The soldier who has a case of blues, who forces himself to laugh and sing to pull himself out of it, is applying that law. Note how a timid man, in crossing a wood in the dark, whistles and makes a noise to encourage himself. Thus our gestures, our mimicry, our attitudes, even when mechanically assumed, are often able, to a certain degree, to incite in us the emotions to which they habitually correspond.

Require a soldier to step out like a soldier, that is, to assume a military bearing, worthy and proud, and guns will create in him the beginning of the emotions of dignity and pride. That is why the uniform is of such importance on the soldier's mentality.

In battle, it has often been noted that the simple command, "Forward—fix bayonets," force the soldier to accomplish offensive actions and calm fears; the emotion of aggressiveness, of audacity, is almost mechanically released by the bodily action.

General Remarks on the Methods of Inciting the Sentiments. All these methods of exciting the sentiments should be varied with the circumstances and the individual. Some men, by their own predispositions, are easily moved by music and singing; others are more sensitive to speeches and reading. The educator should as far as possible take into account these differences of temperament. Particularly, he should multiply the suggestions which he thus presents to his men. To be sure to act on all the hearts, he should use every access to the soul.

However, he should remember the law that "the power of excitation is deadened by habit." In fact, power of exciting the sentiments of any particular method will become blunt by repetition and familiarity, and, if continued too long, may become nil. If you keep singing the *Marseillaise*, if you have presentation of the colors every day, the men will rapidly become bored by those ceremonies; in place of moving them they get dull, and you thus get a result opposite from what you want.

These methods of exciting the sentiments must therefore be used with tact and at the appropriate time, because it must be noted that the human heart is not always ready to accept suggestions of certain emotions to the same degree. At times the soldier is under the influence of a sentiment entirely incompatible with the sentiment which the educator may wish to incite. Thus, it is useless to harangue a soldier about patriotism when he is tired and depressed by a long march.

Among the sentiments which educators of all times and all conditions have always used, that of fear of punishment is of importance. In fact, to require obedience is often to require a person to execute an act which he would not spontaneously accomplish and which appealed to him, to some extent, as disagreeable. . . .

The leader, as well as any educator, will have to make use of the fear of punishment. This sentiment will make itself felt in the consciousness of his men to reinforce their good inclinations, which alone might prove ineffective.

IX. The Action of Ideas

We have seen that a man is urged to action by his sentiments, but he does not always obey them blindly. Often he reflects in order to find out if his impulsion will really result in the satisfaction of the sentiment.

Intelligence is the guide of the sentiments. It controls our acts, informs us of their possible consequences, and permits voluntary

action since it is thanks to them that our enlightened consciousness can confront contradictory sentiments and distinguish those which it is well to obey.

Thus you command a soldier: "Do thus, where you will risk your life." The soldier will obey with the more ardor as the task which he has to perform appears useful to the cause; his intelligence moreover shows him a logical connection between the acts which he is required to perform and his sentiment of patriotism.

This need for logic in actions is more or less mandatory, depending upon individuals, but all feel it to a certain degree. Constantly, man strives to explain to himself the reasons for his actions; if he does not find them, or if we do not give them to him, if he is forced to obey without understanding, he feels in consequence a certain uneasiness and a tendency to consider absurd an action for which he can not find a cause. How often the soldier in war is lacking an ardor simply because he doesn't know what it is all about! Not understanding the object of an operation, he is likely to imagine that it has been undertaken through a simple whim of his leaders and obeys only half-heartedly. So it is for all men and in all the circumstances of their life; they want to know why they are doing things. . . .

The leader should then seek to influence his men not only through their sentiments but also through their ideas. By what methods? It would be absurd to believe that in order to exercise an influence on the minds of his men, the leader should explain all his orders. We have seen over-scrupulous officers take the pains to demonstrate in the utmost details the "why" and reasons for their prescriptions. Subordinates generally do not expect this. In order to satisfy their need for logic it is enough that the general activity which is required of them appear justified. . . . What is essential is to create in the subordinates a condition of confidence of mind, of faith, so that they may have the conviction that, in obeying their leader, they are acting for the best interests of the cause.

We will examine the psychological conditions of that state of mind which we call conviction. It is frequently believed that conviction is produced solely by logical argument, that is to say, by bringing into action purely intellectual elements. This is a mistake. To convince someone of the truth of an idea it is not necessary to build up as if from a clean slate the belief in his mind, under the belief that his mind is operating only by means of his logical faculties. No! Every demonstration, every attempt at persuasion reduces itself to this: Given a proposition that you accept as certain, I will prove to you that

such other is true. To convince someone that he should admit certain ideas as true is to make an appeal to pre-existing sentiments and to show that these sentiments will be satisfied by acceptance of ideas which we propose. So in order to convince a soldier that he should cheerfully bear the burden of preparation for war, I make an appeal to the sentiments which make him wish for the growth and prosperity of the country in showing him that training is a means of satisfying his desire for the assurance of the security of the country; I also make an appeal to his sentiments of honor, self-respect, *esprit de corps*, etc.

The mechanism of every conviction is always reduced to that operation which is essentially the coupling of the proposed idea to an already existing sentiment. You convince a drunkard of the necessity of stopping drinking by exciting his desire to conserve his health; you persuade a soldier to upright conduct by showing him that if he adopts such conduct he will satisfy his sentiments of dignity, pride, desire for approval, praise of his leaders, friends and family. We convert an anti-patriot to patriotism, for example, by demonstrating that his passion for social justice will be better satisfied in defending his country than in adherence to internationalism.

The capital point in the art of persuasion is to find—by intuition or observation—the sentiments which we can use to demonstrate to an individual that he should accept a determined idea. Once we have discovered these sentiments, the man's mind must be presented with ideas, images, and concrete motives which will be most likely to awaken in him his sentiments in showing him the logical connection between these sentiments and the belief which we wish him to admit.

A leader's power to persuade will most often be measured by the greater or less ingenuity which he displays in discovering ideas capable of awakening preexisting sentiments in his subordinates. Some leaders often need say only a word, make a gesture to implant conviction in the soul of their subordinates; they know how to touch the responsive chord, while other leaders talk for hours without being able to convince their hearers.

It is true that their persuasive action, of which we have only demonstrated the psychological scheme, must be used with all sorts of practical precautions. . . . For example, a leader who wishes to convince his subordinates should never place them in a contradictory position, because in forcing a man to support an argument he is likely to adopt arguments which he sustains purely out of a spirit of contradiction. This is why it has been an old rule in education, speaking of pupils, "to argue before them and not with them."

Conclusion

Thus it is seen that an officer's handling of his men, in training and in battle leadership, may take many forms and brings into play many psychological elements.

This study has only scratched the great laws of psychology . . . but these few notions may be enough to show that it is possible to give order and coherence to the processes by which we attempt to transfer the every-day man into a good soldier. Remember that these processes of training and command are as old as the world. . . . Psychology can not only be of great assistance in training and leadership, but can also strengthen the young officer's confidence in the efficacy of his moral action.

MAXIM LXIX

There is but one honorable mode of becoming prisoner of war. That is, by being taken separately; by which is meant, by being cut off entirely, and when we can no longer make use of our arms. In this case, there can be no conditions, for honor can impose none. We yield to an irresistible necessity.—*Napoleon's* Maxims of War.

The Reserve Officers' Association and National Defense

By CAPTAIN FLOYD W. NEWMAN, AG.-Res.

*EDITOR'S NOTE.—*The author does not mean exactly what he says. Save in the case of the war with Mexico, this country has entered every one of its major wars upon the demand of our people, and the Mexican War was extremely popular. In every case, our people have engaged in war of their own volition and because of some immediate cause other than military aggression—taxation without representation, imprisonment of American seamen, boundary line dispute, right of secession, treatment of Cuba, sinking of neutrals. The fundamental causes, of course, are not so simple nor so easily stated as these immediate causes.

IN view of the surprisingly great number of people who know little or nothing of the dangers with which they as individuals and the country as a whole are constantly faced, I shall attempt to give a brief but concise outline of the dangers which we face, the means of combating and eliminating them, and the reasons for the employment of such means.

America has been constantly a source of envy to those outside her boundaries, as well as to certain factions therein, since the arrival of the earliest settlers, and this has been true of the United States since its inception, reaching its peak at the present day.

Since 1776 this country has engaged in what have been officially recorded as 100 wars, of which six have been major wars involving the entire nation, and of which three required the entire man-power and industrial resources of the nation.

The extent of the cost in both life and money has increased rapidly with each successive major war due to the growth of the nation, the increased strength of our enemies, and, most important of all, the lack of adequate preparation during time of peace to cope with the inevitable wars with which we have been confronted at regular intervals of time.

It is true that the people of this nation have never engaged in a war of their own making or of their own volition,* but the fact remains that we have been forced to participate in many wars instigated by others and which we could not possibly have evaded without the loss of our national pride and standards or without losing our identity as a nation.

The recent efforts of this country to obtain the sanction of the other major powers to our proposed plan to outlaw war is a great step forward and has thus far met with unanticipated success. The League

of Nations and the many other organizations and acts of an international character have also done much toward developing friendly relations among the peoples of the earth. The aerial flights of Col. Lindbergh, the German-Irish officers, Capt. Carranza, and others have also been of great value in cementing friendly international relations.

However, as long as there are people on this earth there is bound to be dissention among them, and as nations are nothing more than large groups of individuals, represented by a small body in the form of a Congress, Parliament, or other similar body elected by popular vote, there is no hope but that future wars, no matter how desirous we may be of averting them, are inevitable.

Peace treaties are an expression of good will and bind those peoples who sign them to uphold their honor by abiding by the contents thereof, but as has been proven repeatedly, particularly in the case of the World War, those peoples who believe that they have the power to obtain that which they desire give such treaties no more regard than if they did not exist. Such treaties admittedly tend to restrain any nation from declaring war, but do not to any degree amount to a guarantee against war.

At such time as it is definitely found possible to settle all disputes between individuals by arbitration, to cause all violations of municipal and national laws to cease, to cause violations of the Ten Commandments to become extinct, then, and then only, can we dispense with our municipal and national police forces, our revenue agents, our churches, our courts, and our armies.

It would be worse than absurd for any layman such as I to attempt to amplify or improve on the expressed opinions of such men as our nation's Presidents, from Washington to and including Coolidge, and of our own and other nations' noted statesmen on the subject of what constitutes adequate defense against war and for peace. These men have been in positions to study, observe, and experience all the details of international relations and wars, and they invariably advocate, in words similar to those of Washington, that the most effective means of preserving peace is to be prepared for war. Experience, from the beginning of time and in all lands, has proven the wisdom of their statements.

There are untold quantities of organizations of various types, large and small, working to undermine or destroy the United States as a Government, in our every community, whether we are aware of them or not. It is the duty of every American citizen, as an American, to apprehend and assist in the destruction of all such dangerous organiza-

tions. There are many people affiliated with these organizations who have no desire to impair or to overthrow our government, and who are so affiliated through having had the purposes of the organization improperly or inadequately explained to them. There are also many well meaning people affiliated with these organizations who became so affiliated through ignorance, as so many people are often sold unsound bonds by the "slick" bond and investment salesman.

It is found that chief among the organizations working for the undermining or overthrow of the American government is an organization which sent representatives before our Congress claiming that they and their organization represented all the churches of the Protestant bodies in this country, and the views held by the congregations thereof. I am glad to state that this claim was readily shown to be erroneous, and several individual congregations protested. Their efforts before Congress were with a view to obtain legislation which would result in undermining our defense and our government, and eventually in the overthrow of the nation by those within and without our boundaries who hope for such an end. The Reds, Bolshevists, I. W. W., and other radical organizations have been proven to be affiliated in one way or another with this organization.

Due to the ever increasing cost in life and money in each succeeding war, which in turn was due to inadequate preparation prior to the outbreak of each war, the Congress adopted in 1916 what is known as the National Defense Act, to insure permanent adequate defense. At the close of the World War, General Pershing appeared before Congress and presented statistics and reasons for the revision of this Act. Congress saw the wisdom of his statements and proceeded to revise the Act in 1920.

The Act, as revised, insures adequate national defense at a minimum of time and money, and provides for the rapid, effective, and efficient mobilization of both our man-power and industries in the event of another national emergency.

The people of the country who have had this Act properly and fully explained to them, though I regret the percentage is yet small, are thoroughly in accord with its contents, and have been and are giving their wholehearted support to it. It is my request that each and every American citizen do everything within his power to set forth clearly the aims and objects of the National Defense Act to the maximum number of people at the earliest possible date. This is the most effective and only way in which the success of the Act may be accomplished and its contents made nation-wide knowledge.

In brief, the National Defense Act provides for a Regular Army, the National Guard of the various States, and the Organized Reserves. The Regular Army is a very small body incapable of effectively safeguarding the country in an emergency of any consequence. Its purpose is primarily that of Instructor of the National Guard and Organized Reserves and as a National Police Force. The National Guard for use within the geographical limits of the various states in quelling strikes, riots, etc., except in time of a national emergency, when it becomes a Federal body, supporting the Regular Army as a second line of defense. The Organized Reserves constitute the major body of our Army, being composed of men whose daily pursuits are purely civil, who have voluntarily offered their services to the United States in time of a national emergency and who comprise the "backbone" of our defense.

The members of the Organized Reserves are divided into the Officers' Reserve Corps, comprising the officer personnel, and the Enlisted Reserve Corps, comprising the enlisted personnel, for a national emergency.

The Officers' Reserve Corps is supplied by those who had service during the World War, graduates of the Reserve Officers' Training Corps units at the various colleges and universities throughout the country, graduates of the Citizens' Military Training Camps which give physical training to thousands of America's youth each year, and by such other men as are qualified for service therein. It should be borne in mind that the pursuance of the courses in the R. O. T. C. and the C. M. T. C., as well as affiliation with the O. R. C. and E. R. C., is 100% voluntary, yet assures sufficient personnel for the adequate defense of the nation.

It is a recognized fact by all who have had the opportunity of either experiencing or witnessing any major efforts in a political, industrial, financial, religious, or scientific way, that only by extensive organization can the efforts of the individuals who belong become effective. It was for this reason that the officers of the Officers' Reserve Corps organized what is known as the Reserve Officers' Association of the United States.

The aims and objects of this Association are to do all possible to insure the thorough and effective carrying out of the policies laid down by the National Defense Act, and thus insure the protection of every man in America, his family, his money, his lands, his products, and his life.

It is therefore the duty of every member of the Officers' Reserve Corps not only to belong to the Reserve Officers' Association but to broadcast the aims and purposes of the National Defense Act at every possible opportunity before the populace of the country individually and collectively, in order that it may be better understood, supported to a greater extent, and its enemies thwarted.

Every man who holds a commission in the Officers' Reserve Corps is not only proud of the commission he holds from the President of the United States by reason of his having volunteered to serve and by reason of the honor which the holding of such a commission bestows, but he is also proud, and justly, because he typifies the spirit of America and American manhood.

Another reason why every member of the Officers' Reserve Corps should be a member of the Reserve Officers' Association is that, as stated, this is the only body which Congress recognizes as having sufficient power to demand recognition by them in matters pertaining to national defense, and because only by being a member can he hope to obtain Congressional legislation which will insure his being adequately trained to fulfill the office vested in him by his commission. The Association has succeeded in obtaining increased appropriations and other advantageous legislation, as well as beneficial regulations, commensurate with the increase in Association membership, and it will continue to gain more only in proportion to the further increase in membership.

The cost of membership in the Reserve Officers' Association is reduced to a minimum, and the advantages derived both by the members and indirectly by the entire population of the nation in increased protection for themselves is worth many times the cost. Those who have at any time been members of the Officers' Reserve Corps, though not now members thereof, and whose separation therefrom was by honorable means, are equally eligible and welcome to membership in the Reserve Officers' Association as those who are at present members of the Corps.

It is earnestly requested that readers refrain from assuming that my sole object is to increase the membership of the Association through this as an advertising medium. I frankly admit that I am most desirous of seeing every present and former member of the Officers' Reserve Corps a member of the Reserve Officers' Association as an ultimate goal. But I am equally sincere in stating that it is as much my object to get the matter of adequate national defense of the individual and the nation before the most possible people as to obtain increased membership in the Association.

Military Situation of Japan

By MAJOR R. T. GIBSON, C. A. C.

JAPAN is of interest to us for the reason that she is our greatest rival in the Pacific, both in military strength and in commercial development. Professionally, we are more interested in her fighting ships and her expeditionary forces. Many officers have been in Japan or have made personal studies of her history and military activities and are not unfamiliar with the subject. This discussion can cover only a few of the numerous points included in a military situation, and will be on the following: geography, racial characteristics, resources, politics, navy, army, and the estimate of the situation.

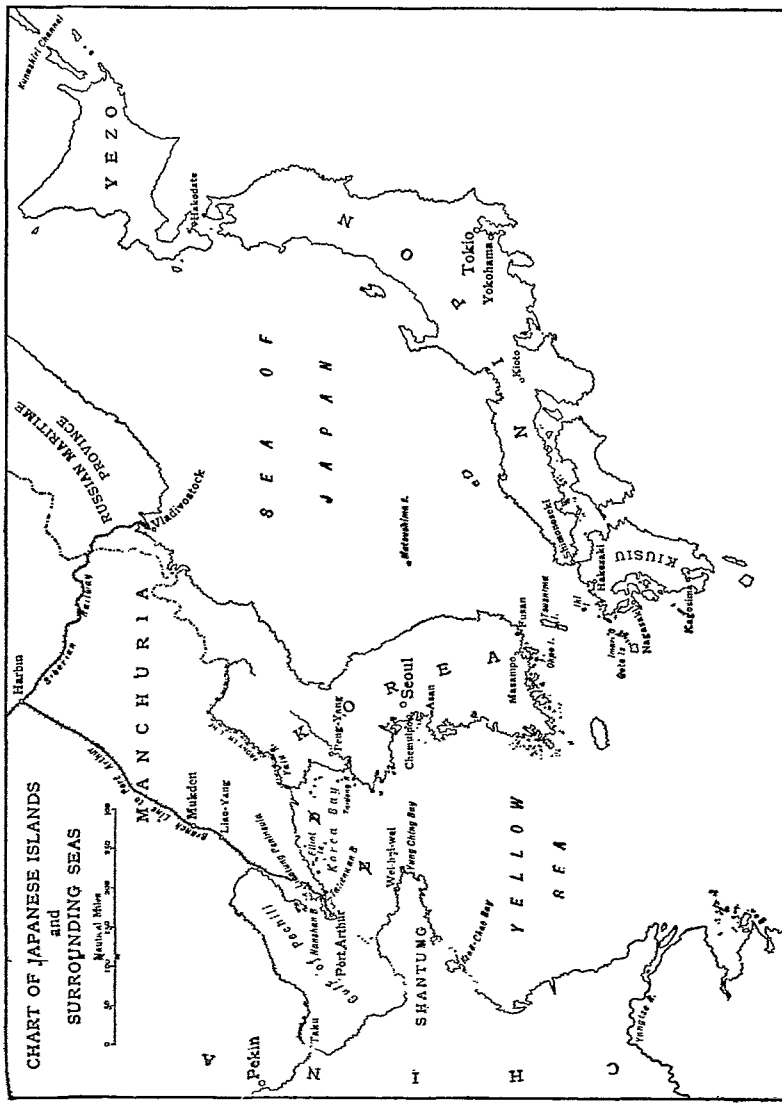
GEOGRAPHY

Japan comprises four large islands, some 4000 small ones, and portions of the mainland of Asia. Besides Japan proper, her territory includes Korea, Kwantung, Formosa, southern half of Sakhalin and the Kurile, Pescadores, and Bonin Islands. She has a mandate over the former German south sea islands, the Marshall, Ladrone, Marianne, Caroline, and Pelew groups. The total area, exclusive of the mandates, is 260,738 square miles, with a population of 83,454,371. Japan proper has an area of 148,756 square miles, about the size of New York, New Jersey, Pennsylvania, and Ohio combined, with a population of 59,736,704. If she extended along our Atlantic coast, she would reach from Labrador to Cuba, with some 17,150 miles of coast line.

From her geographical position, it is seen that she has complete domination over the northern half of the western Pacific, and that the adjacent waters are merely Japanese lakes. She has many ports, the principal commercial ones being Yokohama, Hakodate, Kobé, Nagasaki, Moji, Osaka, Nagoya, Kyoto, and Dairen. She has naval bases at Yokosuka, Kure, and Sasebo, and lesser naval establishments at Maidzuru, Chinkai, Tokuyama Bay, Hiroshima, Ominato, and Bako. Most of her harbors are on or near the Inland Sea and are fortified. A close blockade would seem impossible, and Japan is safe from attack except by naval operations extending over a long period of time and at great expense to the attacker.

Japan resembles Great Britain and the Irish Free State in respect to population, insular position, and dependence on the sea. Her

climatic conditions are mainly not unlike those on our western coast, but vary from the sub-arctic to the sub-tropic. The greatest ocean



depth is just off her Pacific coast, and this, combined with the presence of a submarine volcano, causes the frequent earthquakes of Japan, averaging four small ones per day and a big one every six or seven years.

Racial Characteristics

Officers who have served on our western coast, in Hawaii, or in the Philippines are somewhat familiar with the racial characteristics of the Japanese. There are 111,000 in the United States, of whom 73,000 are in California. There are 110,000 in Hawaii—about forty-three per cent of the total population—and 7,000 in the Philippines. They are resourceful, emotional, and almost fanatic. They revere their Emperor. They are less nervous and endure discomforts better than the whites, but their physical endurance is less. They have no sense of humor. As a people, they are quick to adopt foreign improvements, while retaining their own ancient customs and habits. One point of concern is the alarming increase of population—750,000 annually—to an already overcrowded nation. A family of ten or twelve children is only a medium-sized family in Japan. Her national ambitions are territorial expansion, economic development, and racial equality, all or some of which are opposed by other nations.

The earthquake, tidal wave, and fire of September 1, 1923, put a severe check on economic expansion and prosperity. Some 150,000 Japanese lost their lives and 100,000 were injured. Tokio, the third largest city in the world was destroyed, as were Yokohama, the chief port, and Yokosuka, the chief naval base. This, the worst disaster in Japan's history, and domestic trouble with the Reds, have quieted the aggressive spirit of the Japaneses for the time being.

Politics

The Emperor, Hirohito, is the commander-in-chief of the army and navy. He exercises executive power with the advice and assistance of a cabinet appointed by himself, of which the minister of war is a general and the minister of the navy is an admiral. The Emperor exercises legislative power with the consent of the Imperial Diet, composed of two houses, the House of Peers and the House of Representatives. The representatives only are elected by popular suffrage.

There is absolute religious freedom in Japan, the principal creeds being Shintoism and Buddhism. Not a few of them are Christians, and there is a Japanese Bishop. Elementary education is compulsory from the ages of six to fourteen years, no religious teaching being permitted in the public schools. Middle schools are also provided for both boys and girls and, in addition, there are five imperial universities and eleven other institutions of university rank.

As in other countries, Japan has been having trouble with her university students who are among the free thinkers and radicals of the country. This is being handled by the introduction of military training in schools and colleges, similar to our R. O. T. C. units, not so much for the purpose of military training as to teach respect for law and authority and love of country. This training has only been in force for a year and a half.

Her differences with the United States have been over emigration, California alien laws, Shantung, Yap Island, and affairs in China. She has frequently objected to our policy in the Pacific. At present, the exploitation of Manchuria and China, where she desires to have her sources of raw materials and her markets, is alarming to the Russians who are also looking in that direction.

Resources

Japan is one country that desires to maintain herself as a first-class power and has both a large army and navy with the means to support them. Her military manpower is 6,600,000 and she has a large gold reserve, but she would have to obtain foreign credit to fight a major war. The strength of her army and navy is maintained by conscription, and all males from the ages of 17 to 40 are subject to call. There are far more conscripts than can be used and recruits can be selected with care. Service begins at 20 years, last 16 months in the army, and is superior to the life of the average civilian.

The natural resources of Japan, except for a few raw materials, are abundant, especially coal and waterpower. Up to a short time ago she could feed herself indefinitely, but now rice is imported for her increasing population. She exports raw silk and silk tissues, cotton yarns, coal, earthenware, copper, toys, tea, sugar, fish, camphor, chinaware, matches, and knickknacks. Silk is her greatest export to us, but we take over forty per cent of her total exports. She has copper mines and oil wells, but must obtain iron ore from Asia and wool and rubber from other foreign ports. She is building her own ships and manufacturing her own arms and equipment except for some of the latest developments which she obtains from both Europe and America.

Navy

The Japanese Navy is restricted by the Disarmament Conference of 1922 to the 5-5-3 ratio in capital ships and aircraft carriers. At present she has built or is building, the following naval vessels:

6 battleships } 10 capital ships.
4 battlecruisers }
19 first class cruisers
22 second class cruisers
13 gun boats
121 destroyers
84 submarines
4 aircraft carriers

The older cruisers are being replaced by new 10,000 ton cruisers, mounting ten 8-inch guns. The present armament is 6-inch.

Grand naval maneuvers are held every three years. At the one in 1927, the Emperor reviewed the entire fleet in Yokohama Bay, 172 vessels being in line, including the giant *Mutsu* and the 27,000-ton aircraft carrier, *Akagi*. The maneuvers resulted in the loss of one destroyer and serious damage to two cruisers and a destroyer. A naval dirigible, the *N-3*, was a total loss. She was the sister ship of the *Norge* that flew over the North Pole. The maneuvers are kept secret.

There is a naval academy at which a large part of the course is taken at sea. The Navy numbers about 8000 officers and 68,000 men. There is a naval reserve force of 9000 officers and 154,000 men.

Army

The Japanese regular army is modeled along modern lines, except that it has no corps organization. There is an army organization that corresponds to our corps. The army comprises about 17,000 officers and 216,000 men. It includes 17 territorial infantry divisions—15 in Japan proper—and 1 Imperial Guard division, each composed of 2 infantry brigades, 1 cavalry regiment, 1 field artillery regiment, 1 battalion of engineers and 1 service battalion. This statement is only approximately correct, the exact organization at present not being known.

There are 72 infantry regiments, of which 72 companies are heavy machine-gun companies. The infantry is armed with a 9-pound Mannlicher rifle having a range of 2400 meters, and carries a pack weighing 55 pounds. The main characteristic of their training is bayonet drill. Civilian bayonet instructors are employed, and the men are imbued with the idea of closing on the enemy at once for bayonet combat, since cold steel has been the weapon of the Japanese soldier from time immemorial.

The cavalry consists of 77 squadrons, of which 9 are heavy machine-gun units. The horses, of small size but suitable for the size of the man,

are a cross between imported thoroughbreds and the native ponies.

The artillery consists of the following:

16 regiments of field artillery,
4 brigades of heavy field artillery,
3 regiments of fortress artillery and 9 additional battalions,
1 battalion of horse artillery,
4 regiments of mountain artillery,
2 regiments of antiaircraft artillery.

The army air service consists of 550 officers and 3000 men.

The Engineer Corps consists of 18 battalions.

There is also a Military Police force consisting of 3000 officers and men.

The Japanese army was trained originally by French and later by German officers, and shows the characteristics of this training in various ways. She has the German organization of staff and troops and uses some of the French drill regulations. The ration consists mainly of rice, with a little barley included to prevent beri-beri, fish, fresh or dried, and green tea. A few vegetables are added, and twice a week, beef is substituted for fish. The cost is from 4 to 10 cents a day, depending on the locality. The pay of the officers is very small and no quarters are provided except in the field. In fact, the cost of the whole army is about two-thirds the cost of ours, and it is almost twice as large.

The Japanese soldier is issued three winter and three summer uniforms and two overcoats of a clay-colored material, with colored badges denoting the branch of the service, such as red, infantry; blue, cavalry; yellow, artillery; chocolate, quartermaster corps; etc. One new uniform is kept in war reserve.

Other points of interest are: the canteens or post exchanges sell sake; the officers eat the noon meal together in the officers' mess; authority for second lieutenants to get married must be obtained through military channels; there is one night drill held each week in every branch; there is only one kitchen per battalion, and in some branches, per regiment; there is a tea wagon carrying hot water in place of our water carts, the men carrying the tea leaves themselves; the dental surgeons are enlisted men, and families are not entitled to either medical or dental treatment; venereal disease is, as in most armies, not unusual; men are required to bathe daily; there is compulsory pay saving and diary keeping; their decorations are, the orders of the Crysanthemum, Golden Kite, Rising Sun, and Sacred Treasure, in various degrees; there is a military academy with a 4-year course, officers' schools, a War College, and a General Staff.

ESTIMATE OF THE SITUATION

Of possible enemies in the Pacific, Japan has already defeated China and Russia. In case of another war with either, or with a nation allied with either, the field of operations would be the mainland of Asia. The defeat of Russia, a white nation, gave the Japanese a new prestige, and to them it was a factor in the desire for racial equality.

Japan's military policy is an offensive-defensive one in Asia and a defensive one on the sea. Her army is judged equal to the best, and her navy has the advantage of remoteness to equalize its strength.

The Japanese are not pioneers. They prefer to emigrate to an established country and there, by intensive labor and frugal living, gradually establish themselves in their new location. The Japanese soldiers have been called among the best in the world. Their officers, except those who have descended from the ancient Sumarai, have usually little education or wealth, but they know their profession and love it. Their troops have mass courage and will sacrifice themselves for the common good. Their army has never met defeat. By practical non-participation in the World War, Japan has fallen behind in some of the advanced training and equipment. She is lacking in motor transport, tanks, and artillery, but altogether her progress in the last seventy-five years from the time when she first came in contact with civilized nations has been nothing short of remarkable.

REFERENCES

MILITARY JAPAN. J. Balet.
1931. THE GREAT PACIFIC WAR, Horace Bywater.
WORLD'S ALMANAC, 1928.
COAST ARTILLERY JOURNAL, September, 1927.
NEW YORK TIMES.
COLLIER'S ENCYCLOPEDIA.
ENCYCLOPEDIA BRITTANICA.
THE ENCYCLOPEDIA AMERICANA.

MAXIM LX

Every means should be taken to attach the soldier to his colors. This is best accomplished by showing consideration and respect to the old soldier. His pay likewise should increase with his length of service. It is the height of injustice not to pay a veteran more than a recruit.—*Napoleon's* Maxims of War.

War and Human Nature

By CAPTAIN J. T. DE CAMP, 64TH, C. A.

EVER since the Peace of Versailles, a main topic of discussion has been Peace *vs.* War, or some variation of the subject. Little of the spirit of toleration appears in the writings, and the authors seen to be either militant disciples of Neitzche or short sighted pacifists. On the terms of that Peace Treaty, they alone can agree—it satisfies none of them.

As for the two groups, the first advocates preparedness for a war which we must anticipate; the second believes in a policy of brotherly love. Even if it may dismay some of my good Quaker ancestors, I cannot subscribe to the latter view while the world exists as it is today.

Biologists teach us that human beings, *en masse*, are what they are as the result of certain inborn qualities contained in the "chromosomes" of the germ cell from which they are developed or born, and differ as these "chromosomes" differ. We know that hereditary traits wield a very strong influence in all of us, whereas the majority of these same biologists declare that environmentally acquired traits are not inherited. Changes themselves, in human nature, come imperceptibly from shifts and shufflings in the chromosomes. This means that even in an extended period of peace, with the parents singing "I Didn't Raise My Boy to Be a Soldier," the child will probably be found playing with a wooden sword. If this be true, the task of "educating the world to peace" is a tremendous one.

Inasmuch as so much of our behavior depends on these heriditary traits, as those of fear, self-preservation, anger, and curiosity, we must recognize that man possesses, along with these, the "war making" instinct. Since his existence man has been fighting, and the constantly repeated warfare has kept the warring instinct alive. Those groups who were lacking in this instinct either were eliminated or were forced to retire to undesirable and inaccessible portions of the world at an early time.

A popular, but an erroneous belief at the present moment, is that warfare is decreasing in frequency. After an analysis of the history of the last 800 years, Frederick Adams Wood, one of the most eminent of living biologists, states "that as far as the evidence from European history is concerned, if war is diminishing it is not diminishing much." For England and France, the second of the 400 year periods is just the

same as the first, or earlier, of the 400 year periods—fifty per cent in each case—half peace and half war.

The reader may ask, "Why bother about the past?" The past is an index to the future because what we call "human nature" is nothing but man's hereditary predisposition to act in a specific way under the stimulus of certain circumstances. The continuity of human nature, and the extremely slow changes that can be induced by natural processes, make history repeat itself, at least in its broader aspects.

But if the warring instinct is not dying out, we must recognize that we have also a separate and distinct "peace willing" instinct which explains why, in periods of peace, we cannot see a reason for civilized human beings being willing to engage in "brutal" warfare. But even as we forget the heat of summer in the winter, all emotions are soon forgotten. Thus for a time after every great war most men are pacifists.

I have long considered that in every group a very small minority forms the ruling class, whether they be the leading statesmen, financiers, scholars, or an out and out aristocracy. While at times they may be upset by the less intelligent majority, these eras do not last for long, and the smaller and more able group is soon back in control. Professor Wood expresses this idea exceptionally well, as follows: "There are nearly always at work in any nation, whether at peace or at war, certain constant forces tending in the direction of autocracy, caste formation, and an aristocratic differentiation, a pyramiding of the social structure, a 'conification,' or pointing upward, making the upper classes fewer in percentage to the total, and at the same time more removed and aloof. . . . It depends upon the gigantic force of heredity, and upon the fact that in marriage, like tends to mate with like. . . . A savage people is never highly conified. The King is but a little superior to his people, either in wealth, power or personal ability. With the accumulation of property, . . . there takes place the handing on of riches to the next generation. Men of wealth, success and ability, bring their children to marry one another. Biologreal heredity is at work, and by a process of selection, a caste is formed of individuals endowed with an excess of precisely those qualities that their ancestors have exhibited during their own lives, namely, ambition and the love of power, wealth and leadership, glory and family pride. These forces may culminate in autocracy. When they do we have a national structure very well adapted to belligerency, and very prone to fight."

That this process of conification is well advanced in the United States is very evident, from even a casual survey, as it only requires

an exception to the general rule to give us large headlines in our daily press, as when a millionaire's daughter marries a jazz musician or another elopes with the family chauffeur.

So the biologist insists that the state of war appears to be as natural as the state of peace; yet it would seem that there is another fundamental cause. In other words, men must finally fight because there is something to be gained by fighting. With all our development of the human brain and man's achievements, he still remains only one of innumerable organic species, struggling for existence upon the limited surface of this globe. It is upon the substances which make up this surface that all life is dependent, and from it must obtain food and a place to live. In the future, if not in the past, it would seem that land for food, for wealth, and for expansion would be the economic urge working with our biological instincts towards war.

It was at the beginning of the nineteenth century that Thomas R. Malthus advanced his theory that no further notable increase of the population of man could take place without involving untold misery and calamity. In brief, his doctrine was that the rate of reproduction of man outruns the rate at which food can be reproduced to keep him alive, and that the excess must be controlled through the agencies of war, famine, pestilence, and "Acts of God."

Yet, since that time, we have seen the population of the world increase almost three times. At the same time the "standard of living" has reached a scale never before known; and this change has taken place to the greatest extent in those western countries where the growth was the greatest. On this account most people have been inclined to scoff at the Malthusian doctrine and to believe that we can continue to trust the ingenuity of man to care for our needs in undiminishing supply. This school of thought points to the yet undeveloped lands in the temperate zone, the tropics and, if we are to believe Viljalmur Stefansson, the polar pastures as future sources of food production.

However, civilized man is not only demanding more food from the earth, but his economic needs are constantly taking those substances from the earth which cannot be replaced in usuable form. The phenomenal increase of population in more recent years was largely due to an unique combination of circumstances—the discovery of America, followed by a period of unrestricted emigration; the industrial revolution, which neatly increased man's supply of goods; and the humanitarian movement, which, with the aid of science, has lengthened the span of life.

The passage of a numerical restrictive law by the United States would indicate that the era of peaceful permitted emigration is about at an end, while science is working more vigorously than ever for the rapid enlargement of the population. Man apparently is soon due for a little overcrowding, as is well illustrated by the increase in population from 112 millions in 1920 to 117 millions in 1925 in our own country.

Today the United States represents the most powerful economic group in the world. Not only has it an unusual supply of the raw resources of the earth but it is not yet burdened with an excessive population. It still may please our Government to state that we are free from any foreign entanglements, but each day the economic needs of the world seem to be involving us deeper and deeper; and while our statesmen may proclaim our participation is semi-official or only as observers at international conferences, our financiers are keenly aware that we have mortgages on much of the world. If these vast loans should become endangered we shall see the point of the cone again insisting that "the Flag Follow Trade"; in other words that the Government support our economic interests by diplomatic and even military assistance if necessary.

Our gradual domination of trade in Central America and parts of South America, our interests in the Pacific, our part in the World War, and our vain attempts to withdraw from European affairs clearly indicate that the United States is embarked on a course of ever wider economic and political expansion.

This policy is bound to involve us, sooner or later, in conflict with the interests of other groups, who will be urged on by the instinctive demand for land or its equivalents. Whenever such a conflict develops the materialistic "conified social structure," so well represented in our country will dictate our policy. Will history change, will human nature change? If so, we can then expect the Lion and the Lamb to lie down together.

MAXIM XXXV

Encampments of the same army should always be formed so as to protect each other.—Napoleon's Maxims of War.

Coast Forts of Colonial Maryland

OF all the colonies in America, whether Spanish, English, French, Dutch, Swedish, or Russian, Maryland devoted the least amount of attention to the defense of its coast line. In its early years the colony was too small and too weak to offer any resistance to aggression by foreign powers. It had a long coast line with navigable waters and practicable landing places on all sides; but its interior location, with Virginia below it astride the entrance to Chesapeake Bay, served as a partial protection. Its legislators therefore consistently declined to expend the slender revenues of the colony on coast fortifications.

Maryland first became known through the activities of the industrious Captain John Smith, of Jamestown. In the summer of 1608 he set out with a small party on one of his numerous voyages of exploration, in the course of which he visited every bay and inlet on both sides of Chesapeake Bay from Cape Charles to the mouth of the Susquehanna River. He sailed up the Patapsco River, and he ascended the Potomac to the falls above Georgetown.

This colony was first settled by persecuted Roman Catholics from England and Ireland. George Calvert, later Lord Baltimore, an influential professor of Catholicism, desired to plant a colony in America for the benefit of the people of his faith. Failing in Newfoundland and rebuffed in Virginia, he looked with desire upon the fair lands between Virginia and New Netherland. Charles I. readily granted a charter, but before it was completed, Lord Baltimore died. His son, Cecil Calvert, succeeded to his estate and had the charter confirmed to him. The first company of nearly two hundred colonists, mostly Protestants, sailed in December, 1633, under Leonard Calvert, a brother of the Proprietor. Arriving in the spring of 1634, Calvert landed upon an estuary of the Potomac, purchased an Indian village, and laid the foundation of a town which he named St. Mary's and which he fortified. This settlement, being outside the territory claimed by the Dutch, caused no protest on their part.

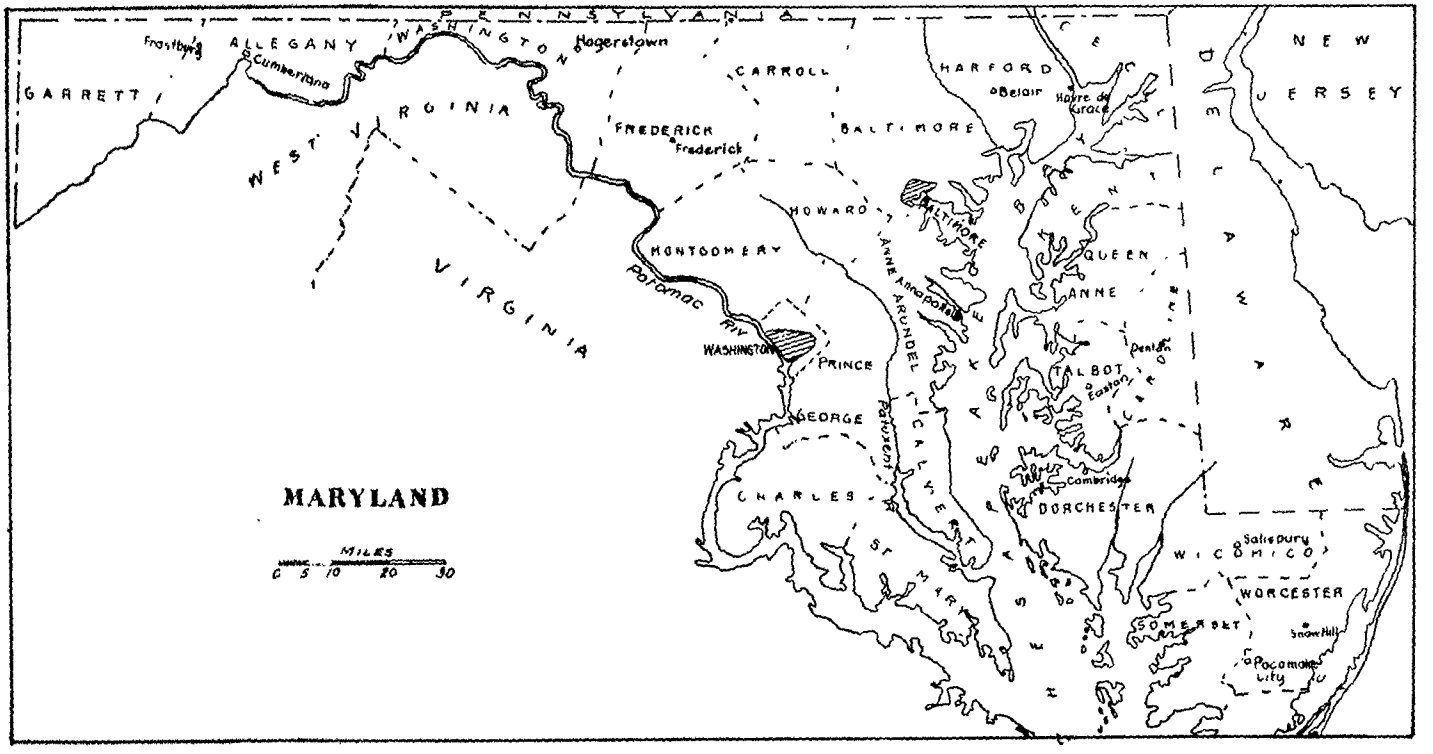
For a number of years the colony in Maryland progressed but slowly. No considerable settlement was made beyond the limits of the town of St. Mary's, although that community seems to have been sufficient to establish the English claim to this part of the country. The Dutch and the Swedes, busy maintaining their own slender garrisons in the Delaware region, left Maryland severely alone.

No particular military establishment was maintained within the Colony, and no special attention was devoted to the construction of forts for the defense of the shore lines against invasion by a foreign foe. A bill brought before the Assembly in its session of 1637-38 provided for the erection of a coast fort, but it failed to become a law. A small fort was, however, soon constructed at St. Ignatius, near St. Mary's and not far from the mouth of the Potomac.

With an Indian war (1642-45), Claiborne's Rebellion (1645-46), and Civil War (1655-56), the years sped rapidly by in Maryland. Little or no thought was given to the possibility of foreign complications, but in 1650 an act was passed providing for the rebuilding and garrisoning of the fort at St. Mary's. To accomplish the work, every five inhabitants of the colony were required to provide and support one man to assist in the work. A poll tax was used for raising a thousand pounds of tobacco with which to pay for a gunner for the fort; and, for maintenance, it was ordered that every decked vessel trading in the colony should pay a duty of one-half a pound of powder and two pounds of shot per ton burden. This duty was increased in 1661 to one-half a pound of powder and three pounds of shot per ton.

In 1678, the home government inquired of the Lord Proprietor of Maryland concerning the provisions for defense in that province, and received one of the most ingenious arguments against fortifications that have ever been formulated. "As to castles and forts there are none, so that if an enemy should land here, he would not find any place wherein to fix himself." This clever excuse failed to give satisfaction to the authorities in England, and the Proprietor was instructed to construct coast fortifications adequate to the defense of the colony. Nothing much was done for a number of years for, without the support of the Assembly, the Proprietor was helpless, and the Assembly was unwilling to expend money on what was considered to be unnecessary purposes.

In 1697, the governor proposed to the lower house that the Crown be requested to station a frigate in Maryland waters to compensate for the lack of coast fortifications; but that body considered it unnecessary for the Crown to go to such an expense. In 1699, the House again declined to appropriate for forts, saying: "This Province from one side to the other being so luxuriant in navigable rivers and so many capacious harbors and fair landings, the land next the water being generally low and level with no banks to prohibit landings, . . . it does not seem to us a thing practicable to erect any such fortifications or to restrain shipping from the usual places of trade and confine it


PENNSYLVANIA
GARRETT
ALLEGANY
WASHINGTON
Hagerstown
Frostburg
Cumberland
WEST VIRGINIA
FREDERICK
Frederick
CARROLL
HARFORD
Belair
Havre de Grace
BALTIMORE
NEW JERSEY
HOWARD
MONTGOMERY
Potomac River
VIRGINIA
WASHINGTON
PRINCE GEORGE
ANNE ARUNDEL
Annapolis
BALTIMORE
QUEEN ANNE
CECIL
KENT
TALBOT
Easton
Centreville
CHARLES
CALVERT
Prince Frederick
DORCHESTER
Cambridge
WICOMICO
Salisbury
WORCESTER
SOMERSET
Snow Hill
Pocomoke City
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to any particular harbor, and we are confident that if their Lordships, the Lord Commissioners of Trade and Plantation, did visibly know this Province, they would concur with us and adjudge that all the revenues of this Province were insignificant to the erecting of such desirable fortifications as would defend it or would be any considerable security to shipping in any case." This reply closes all consideration of coast forts in Maryland until after the outbreak of the Revolutionary War.

In 1755, during the war between England and France, Maryland did finally decide to build a strong fort on navigable waters, although the works were to serve as a frontier fort against the French and Indians, rather than as a fort erected for the protection of the coast. Near the present town of Hancock, twelve miles beyond the then most western settlement, Governor Hancock built a substantial stone fort, one hundred and twenty yards square, with accommodations for two hundred men. It had bastions and curtains faced with stone, and on each bastion was mounted a six-pounder. This fort, named Fort Frederick, stood on an elevation about four hundred yards from the bank of the Potomac.

Early in 1776 a British sloop-of-war and several tenders entered the Potomac and caused great consternation among the inhabitants of that section. The vessel was soon forced to leave the river, but its appearance hastened the completion of the defenses of Baltimore and Annapolis, which had already been ordered by the Provincial Convention. At Baltimore, a battery was thrown up on Whetstone Point, the site of the future Fort McHenry, and a boom was laid between that point and the Lazaretto, a little projection of land on the north side of the stream. A chain, supported by twenty-one sunken vessels, was also stretched across the narrow neck of the harbor of Baltimore, but it was removed in the course of the summer. About two hundred and fifty negroes were employed about two years in constructing the boom and in erecting batteries in the vicinity.

At Annapolis, fortifications were erected at Greenbury's Point, Horn Point, Beaman's Hill and Windmill Point, and breastworks were put up at several other places.

During the war the communities on the Potomac were not greatly disturbed by the enemy from the seaward side. They were due, however, for one period of excitement before the end of the war. In August, 1777, before proceeding to the Delaware for the operations around Philadelphia, the British fleet, with the Army under Sir William Howe, ascended Chesapeake Bay, and at its head, near Elkton, the land forces disembarked to begin their march upon Philadelphia.

The people of Maryland were naturally greatly alarmed, and the governor, at Annapolis, submitted to the Council the question, "whether the small number of militia already in town should be kept, others called in and preparations made with a view to defend the place, or the towns and forts evacuated, and the guns and stores endeavored to be removed and secured." The contingency for which the fortifications had been erected having arisen, the Council, "were unanimously of the opinion that Annapolis cannot be defended by any force which may probably be collected against the force the enemy may at any time bring against it, and that, therefore, the town and forts ought to be evacuated and the guns and stores removed and secured."

Baltimore and Annapolis were not put to the test, for the fleet left the Potomac region to participate in the operations on the Delaware. The war continued its weary way and finally came to a close. From it Maryland emerged as one of the states of the new Union, but with no more coast defenses at the end of its colonial career than it had at the time of the establishment of the first settlement at St. Mary's.

REFERENCES

Alsop, George. CHARACTER OF THE PROVINCE OF MARYLAND. (Cleveland, 1902, reprint of the London edition of 1666.)

Avery, Elroy M. A HISTORY OF THE UNITED STATES AND ITS PEOPLE, VOLUMES II, III, IV, and VI. (Cleveland, 1906-10.)

Bozman, John L. A SKETCH OF THE HISTORY OF MARYLAND. (Baltimore, 1811.)

Hammond, John M. QUAINT AND HISTORICAL FORTS OF NORTH AMERICA. (Philadelphia, 1915.)

Lossing, Benson J. A CENTENNIAL EDITION OF THE HISTORY OF THE UNITED STATES. (Syracuse, 1875.)

Maryland. ARCHIVES OF, VOLUME XXXII. (Baltimore, 1912.)

McSherry, James. HISTORY OF MARYLAND. (Baltimore, 1904, edited and continued by Bartlett B. James.)

Mereness, Newton D. MARYLAND AS A PROPRIETORY PROVINCE. (New York, 1901.)

Ridgeley, David. ANNALS OF ANNAPOLIS. (Baltimore, 1841.)

Scharf, J. Thomas. HISTORY OF MARYLAND, VOLUME I. (Baltimore, 1879.)

MAXIM LIX

There are five things the soldier should never be without—his musket, his ammunition, his knapsack, his provisions (for at least four days), and his entrenching-tool. The knapsack may be reduced to the smallest size possible, if it be thought proper, but the soldier should always have it with him.—Napoleon's Maxims of War.

PROFESSIONAL NOTES

Harbor Defenses of Charleston

Coat-of-Arms for the Harbor Defenses of Charleston.

Shield: *Gules* a palmetto tree proper.

Crest: On a wreath *or* and *gules*, a dexter arm embowed habited in the Continental artillery uniform (blue with red cuffs and yellow buttons) grasping the Fort Moultrie flag (blue with a white increscent in dexter chief and the word "LIBERTY" also in white along lower edge of proper.

Motto: Let's not fight without a flag.

These arms commemorate the repulse of the British fleet in 1776. The shield is red for artillery and on it the palmetto tree of South Carolina, adopted by that state as its emblem because Fort Moultrie in 1776 was constructed largely of palmetto logs. The crest is to recall Sergeant Jasper's exploit, when he replaced the flag which had been shot down off the parapet, and the motto is the remark attibuted to him at the time.

Training Problems--Rapid Artillery Fight

In continuation of a series of articles on training of troops generally that have been published in the *Militär-Wochenblatt,* Lieutenant General von Metsch, German army, retired, submits a contribution on the subject of "Rapid Artillery Fight" in the July 4, 1928, number of that journal, a translation of which is here given.

Many excellent lines of thought have been brought out and given publicity in discussions on the subjects "Material or Morale?" "Technique or Tactics?" I have frequently been obliged to say to the younger hearers of my lectures that these questions have, at least since the war, been largely overtaken or not correctly presented. The machine cannot dispense with the bold and vigorous hand on the lever. Technique has finally become an indispensable part of tactics. This is most distinctly manifest with the artillery but rests by no means with that arm alone.

Its firing activity is founded on a versatile science. Young artillerists will therefore permit me to say that this science must not be prudish. By that I mean that their participation in it should not necessarily be work in the undisturbed quiet in a student's room in which one bars out all interference. The science of artillery must, on the contrary, be a steadfast stand against blow and thrust, fire and weather, friction and repercussion. When an artillerist has in him the stuff for a savant he must still be a master firmly set in many unlettered things in order to be able to do full justice to his arm. Our recently retired inspector of artillery has presented to the arm an invigorating example of its many sidedness. But still, based on my teaching experience, it is not superfluous to call

attention to the fact that technique and science must always and everywhere stand ready to assist in the service of tactics, of leadership, and in promotion of the purposes and intentions of the directing authority.

There are naturally occasions for reciprocity of action: technique and science may be able to point out new ways for tactics; the tactician may set new problems to the technician. But with artillery practice the scientific best may have to yield to tactical necessity. Neither the most complete technique nor the best established science are in themselves deciding factors in the fight. The decision remains rather with the preponderating technical versatility and the most skilfull evaluation of scientific effort in the service of tactics. It is, for example, not as essential that the artillery practices with technically perfect material, with long or short, thick or tenuous barrels. It is more important for us to known how to make the guns that we have serviceable to their utmost to carry out the leader's purposes in every situation of time, place, and effect.

Similarly, there is really very slight war value in the fact that an artillerist knows how to get the full value out of a good photograph after hours of exhausting examination. Usefulness for war purposes begins only when he is able quickly to extract from a bad, distorted, and hastily taken picture whatever is at once available for firing utility. It is not of great significance that a surprise fire attack succeeds with carefully set-up battery plans aided with the best charts and after exhaustive consumption of time. Such incidents apply to the war of movement only when success follows quickly under skilfull recognition and utilization of important accidental clues and their dexterous application to the case in hand.

This series of examples can be readily extended. It must be shown that the modern artilleryman can get the better by a makeshift of that which the learned man arrives at only after thoughtful, methodical, and painful study. The situation frequently demands that the artilleryman economize seconds while the man of learning has opportunity to waste hours. The fighting situation decides for the artilleryman; the scientist's aim is scientific perfection.

I have at times encountered a tendency among young artillerymen to neglect this self-evident tactical primacy. That is probably due to the fact that many young artillery officers have had only war of position experience. But the preponderance of tactics must be impressed to the greatest possible extent upon those who are to follow us as leaders, because they are to be trained, in first line, for the war of movement.

The "rapid fight" is an essential part of modern war. Regulations do not recognize this designation but it forces itself upon us when one realizes that the vacant spaces in the fighting field to which we were accustomed will be suddenly occupied by swarms of armored "turtles" rushing over the terrain like frightened rabbits. It is not out of place to use this description even though it may, for the present, be somewhat anticipatory of immediate future development, if we can thereby impress the young artillerist with the fact that the war of movement will demand from him a very extraordinary celerity in decision and action. Quickness in opening fire, rapid changes of targets, decision in choice in selection of any one of a number of targets, utilization of rapidly vanishing possibilities of effective action, and such contingencies will become necessary. It is probable that the artilleristic youth of today has not yet surpassed us "old timers" in all these things but *it must do that*, because in the interval between

us the power motor has made its appearance on the battle field. Training must therefore take up schooling in rapidity of action.

He who writes about artillery finds it very difficult to evade by silence allusion to "cooperation with the infantry." I should like to limit myself to the expression that this cooperation can be promoted best by means of a well-considered series of separate exercises and a conference that will gain valuable results for both arms. But all artillery activities that are not brought to the full perception and practical understanding of the infantry at such exercises may just as well be replaced by assumed situations and artillery troops are not needed for that. It is preferable for the infantry to exercise alone in such cases. Combination of exercises that are devoid of mutual educational gain do not result in promoting good cooperation.

Fire-directing exercises are rightfully receiving more and more attention. They have the advantage of requiring little ammunition and no construction of targets, but they are, it is to be regretted, made materially difficult with us by the inadequacy of our exercise fields. These difficulties are due not only to the treaty of Versailles but also to the dictate of our finance minister. When an arm is so far behind hand as is our artillery one ought to provide it at least with the best possible facilities for training. For that purpose there are needed above all more extended fields for exercises with far reaching freedom of action in directions of fire. This need is the more urgent because the most important feature of such fire-directing exercises is rapid combination of the fire of many units with frequent changes of numbers and direction of fire. The dextrous control of such massing of fire in greatest density in the shortest time will decide the modern artillery fight. It is very nearly the sole means of the weaker artillery, but it is also almost the sole resource for adjustment of the numerous inaccessibilities that usually prevail in searching out targets in the war of movement.

Fire training must occasionally be freed from tactical considerations, but one must not dispense with firing with fixed ammunition in which case tactics preponderate. It is only the fire with fixed ammunition that gives reliable answers to the question whether or not all friction that arises between the order and the call for assistance of the artillery and the impact of the first projectile has been eliminated.

Nothing else can be substituted for this method of instruction for the inexperienced soldier. The cooperation of infantry and artillery cannot be made impressive and clear in any other way.—G. R.

The Battle of Vittorio Veneto

In an article published in the *Oesterreichische Heereszeitung* (Austrian Army Journal) of February 24, 1928, a contributor writing over the signature "Gbk" takes exception to some of the statements made and conclusions reached by Captain Charles J. Sullivan, 26th Infantry, U. S. Army, in his article "The Battle of Vittorio Veneto" which appeared in the September, 1927, number of the COAST ARTILLERY JOURNAL. The Austrian writer, after quoting in full the first paragraph of Captain Sullivan's article, proceeds to comment as follows:

The Italian leadership which certainly enticed the Austrian reserve forces to the Grappa position by its continuous hammering at that place in order then to break through at the central Piave section which had been wholly denuded of

reserves, is praised in equally high-flown language. He estimates the opposing forces at 837 battalions, 1,070,000 men and 7000 guns on the Austro-Hungarian side, and at 790 battalions, 912,000 men and 8929 guns on the side of the allied forces (35 Italian, 3 British, 2 French, 1 Czecho-Slavonian divisions and the American Infantry regiment No. 333). The Austrian heavy artillery was, in its manner of application, superior to that of the enemy while the light artillery was more skilfully handled under French influence. The Austrian machine-gun detachments fought with extraordinary bravery and understood how to come into action with surprising flanking attacks. These statements, namely the sentences first quoted, provoke sharp contradiction in order that a legend may not become history as has heretofore been attempted by converting even Custozza of 1866 into an Italian victory. The Austrian reserves were correctly placed. It would have been quite possible to push forward, with four divisions under Field Marshall von Röhring from the north, with three reserve divisions of the Isonzo army from the East, up against Conegliano, and to thrust back over the Piave on October 28 the entire forces that had succeeded in passing over, if the troops demoralized by political agitation had not refused obedience.

The author describes the bitter contests at the Grappa and Asolone and discriminates very correctly between the precipitate and disorderly retreat of those portions of the army which were furthest away from the fighting front and the stubborn resistance of the other parts of the fighting troops. He himself calls attention to the fact that machine guns with service crews all dead were found at every bridge, at every house offering a defensive barrier at a street, at every height that commanded the environing terrain and who supported the retreat with their lives. But it did not, apparently, occur to him that the difference in behavior of the troops engaged was due to the differences of their nationalities and to the extent to which their discipline had been corrupted by political agitators. In justice it must here be admitted that non-German troops also fought heroically while, on the other hand, German-Austrian troops finally gave way after they had been repeatedly put into the focus of the fighting sectors to protect the front.

With reference to the fighting power of the Austrians, the author might have given prominence to the fact that the Austrian infantry was more than a match for the Italian in aimed fire as well as in close combat with hand grenades and the bayonet and that it maintained this superiority even during its collapse.

In estimating relative strength it seems that everything wearing a uniform was counted in, and that battalion numbers were simply multiplied by 1000, although there were, even before the last battle, companies with only 70 rifles. The enormous numbers of captured prisoners were not secured either by skilfull leadership or by force of arms, but were due to the fact that the Austrian troops received the order for cessation of hostilities erroneously, and as a consequence of Machiavellian deception by the Italian leadership, thirty-six hours earlier than did the enemy troops. The confusion caused by this was skilfully but unchivalrously exploited in order to receive credit for victory over an army hastening to its homes in a state of voluntary dissolution. The desertion of the Bulgarians contributed more toward the final downfall of the central powers than did the Italian army.

General Diaz restored the Italian army to full energy and vigor in his time after the twelfth Isonzo battle and set it up, well prepared and led, for the following great battles. But he did not show himself to be a conspicuously prominent leader, because from the events of the Austrian June offensive as well as from those in numerous front sections of the last battle, it was evident that the judgment of Italian army leadership originating from 1848: *giorna di battaglia giorna di confusione*, still held good.

Had the Austrian-Hungarian troops had a presentiment of the prolonged and severe captivity that fell to their lot, had one been able to foresee the illegal oppressive measures to which the south Tyrolians were subjected, the Italians would never have been permitted to pass beyond Trentino nor even to the Brenner pass.

The ingenious descriptions of certain phases of the battle by the author is probably unconsciously due to the desire of showing that he was a participant in an event of historical military record. It is, however, still to be regretted that a periodical otherwise so preeminently directed did not subject the writing to a timely more rigid scrutiny.—G. R.

Names of New Cruisers

Secretary of the Navy Wilbur has assigned names to four of the new light cruisers which are under construction: No. 27, *Chester*; No. 29, *Chicago*; No. 30, *Houston*, and No. 31, *Augusta*.

These vessels were authorized in 1924 and funds for their construction were provided in the naval appropriation bills for 1928 and 1929. The cruisers will be 600 feet long overall, extreme breadth 64 feet 5⅜ inches, and displacement 10,000 tons; mean draft 19 feet 8½ inches.

The *Chester*, which is named in honor of the City of Chester, Pa., is being built at the American Brown Boveri Electric Corp., Camden, N. J. On July 1 she was 20 per cent complete.

This is the second ship of the Navy to be named *Chester*. The first was a scout cruiser built by the Bath Iron Works, Maine. She was authorized in 1904 and launched June 26, 1907. Her displacement is 3750 tons. The name of this vessel is now changed to *York*, in honor of the city of York, Pa.

The *Chicago* is named in honor of the city of Chicago, Ill. She is under construction at the Mare Island navy yard, Calif. On July 1, 5 per cent of the work of construction had been completed.

The first *Chicago* was built by John Roach and Sons, Chester, Pa., and she was launched December 5, 1883. Her construction marked the change from the old Navy to steam vessels, and she was the first ship of the "new Navy." Her displacement is 4500 tons. The name of this vessel is now changed to *Alton* in honor of the city of Alton, Ill.

The *Houston*, which is named in honor of the city of Houston, Tex., is under construction at the Newport News Shipbuilding & Dry Dock Co., Newport News, Va. On July 1 she was 21 per cent complete.

The first *Houston* was a naval cargo vessel which was used by the naval overseas transport service during the World War. She was originally a German collier, S. S. *Liebenfels*, built in 1903 by Bremen Vulcan, Vegesack, Germany, and owned by the Hansa Line. Her tonnage was 4500 tons and her crew was composed of

10 officers and 134 men. This vessel was taken over from her German crew in Charleston Harbor, S. C., on April 6, 1917. The *Houston* made four trips as a cargo vessel to Europe from November, 1917, to February, 1918, and she was then assigned to carry coal from Cardiff, Wales to France. She was sold September 27, 1922.

The *Augusta* is named in honor of the city of Augusta, Ga. She is being built by the Newport News Shipbuilding Company and on July 1 was 11 per cent complete.

The United States Navy has assigned the name Augusta to two other vessels. The first *Augusta* was a sailing vessel, brig, with 14 guns and a crew of 80 men. She was built or purchased at Baltimore in 1799 at a cost of $16,294. She was commanded by Lieut. Archibald McElroy and composed part of Commodore Sila Talbot's squadron in the West Indies in the quasi-war with France. In 1800 she captured the vessels *L'Espoir*, *La Victoire*, *La Jeanne*, *Le Republic*, and, with the ship *Herold*, *La Mutine*. In 1801 she was sold at Norfolk, Va., for $13,889. The second *Augusta* was a paddle steamer of 1310 tons used during the Civil War. —*Army and Navy Journal.*

A German's Tribute to a Departed Distinguished Military Opponent in the World War

The following tribute to Field Marshall Earl Haig, contributed by General of Cavalry M. von Poseck, German Army, retired, is published in the March 25, 1928 number of the *Militär-Wochenblatt.*

Field Marshall Earl Haig who led the British army in France for over three years died in London on January 29 at the age of 66 years.

He began his career as cavalryman in the 7th regiment of Hussars. He made his mark there not only as a good cavalryman and prominent polo player but also by early predilection for study of military science. The latter brought him frequently to the continent for observation and study of the armies of France and Germany. He was detailed to the general staff school on the reputation of his reports on foreign military services. He then served under Kitchener in the Sudan and in South Africa where he was chief of the general staff of French's cavalry division. He became Major General at the age of 42 years in 1903 and general inspector of cavalry in India where he remained until 1906. He then served for three years in the war ministry in England and from 1909 to 1912 as chief of the general staff in India. After that he was given command at Aldershot, an important position for the training of British troops and took over leadership of the I Army Corps of the British expeditionary army at the outbreak of the World War. When the war front became stagnant in the war of position and the British troops had been reorganized and strengthened he was entrusted with the command of the First British Army. Sir Douglas Haig was the leader of the British field army of the West Front from 1915 to the end of the war.

The funeral ceremonies indicate clearly the manner in which the British people esteem and honor their leader and the extent to which military sympathy and sentiment animates them. Haig had, even in his life time, given expression to the wish to be buried in the cemetery grounds of his ancestors at Bermersyde among the ruins of the Dryburg Abbey in Scotland where Sir Walter Scott is buried. Bermersyde, on the Tweed, was formerly a possession of the Haig family

for 800 years but had come into the hands of others. The English people presented the old family heritage to their greatly esteemed military leader in 1921. Since then Haig was especially pleased to make the place his home, following the hunting hounds of the Duke of Buccleuch, fishing for trout and salmon in the Tweed, and playing golf in the vicinity.

After his death in London the casket containing his remains was drawn in solemn procession for funeral service to Westminster Abbey. His last used war horse was led by a member of his former 7th regiment of Hussars and a member of the 21st Lancers, and in the stirrups the boots were carried with toes pointing to the rear according to the old English custom. The gun from which the military funeral salute was fired was that from which had been fired the first shot of the world war at Binche not far from Mons, on August 22, 1914, while the gun carriage that carried the casket covered with the Union Jack belonged to the gun that fired the last shot in the World War.

In London, and also later on at the funeral in Scotland, Scottish bagpipe players played the old Scottish lays, and at Westminster Abbey trumpeters of the Household Cavalry and later on Scotch Greys at the Dryburg Abbey played the last "Taps" and the "Reveille."

English judgment classes Haig in one place as not one of the great field commanders of military history, but qualifies this with the statement that there was none such in any of the armies that participated in the World War, but holds that at any rate he was an excellent soldier who pursued his objective clearly, with singleness of purpose and without affectation, and did not permit himself to be diverted from a resolution once taken.

As early as 1914 General French had frequently given prominence in his reports to the meritorious services of the leader of the I Army Corps. Thus, he reports on the battle on the Aisne: "The activity of the 1st Corps on September 14 was so skilfully bold and decisive that it gained ground that alone enabled me to hold my positions on the north bank of the Aisne for more than three weeks through very serious combats . . . and I cannot adequately acknowledge the valuable services rendered by Sir Douglas Haig and the corps under his command."

He exhibited his spirit for the offensive at Loos and in the north in 1916 and on the Somme and in Flanders in 1917 where, in spite of the great English losses, he led his divisions again and again against the enemy with real English stubborness. We, who then fought him at Paschendale, Morslede, and Becelare can confirm this.

Again, during the worst times of our penetration in March, 1918, he showed himself to be a prudent leader in the defensive also. But his greatest deed was his yielding subordination to Foch which called for great self-sacrifice and military far-sightedness and capacity for far-reaching judgment of the future.

His personality is universally acknowledged as having been courageous, honorable, just, and reliable. With due valuation of discipline he was kindly to every one without distinction of rank and was esteemed and honored by his subordinates. He kept a clear head in defeat as in victory and was frequently at his best when affairs were at the worst.

I can confirm a part of these qualifications from my own personal observations since I made the acquaintance of Sir Douglas Haig at the maneuvers in England in 1903. He had then recently become Inspector of Cavalry in India. He has remained in my memory as an outstanding soldier, a passionately devoted

cavalryman, and a sympathetic personality. His studies of German military authors as well as of our battle fields of former wars were then the principal subjects of our conversations. In a book written by him in 1907, *Cavalry Studies*, are found numerous citations of the German general staff works, of Moltke and of General Pelet Narbonne, as well as of the activities of the German cavalry of the 1st and 2d army of 1870. I wrote a discussion of this instructive volume for the No. 25 *Militär-Wochenblatt* of 1908 and have corresponded with the author on the subject by letter. Field Marshall Haig is an exceptionally interesting personality for the cavalryman. He never lost confidence in his arm and has, since the end of the World War, declared it is an indispensable part of an army in a future war.

His judgments were with distinct positiveness always practically correct. He was also, in the World War, too noble a nature to pass judgment on an opponent in a spirit of inconsiderate and thoughtless hatred.

We German soldiers, and especially we cavalrymen, reverently salute, with sunken saber, our distinguished departed war opponent.—G. R.

Promotion From the Ranks

Opportunity for promotion from the ranks for enlisted men in the regular army, navy, marine corps and national guard, and appointment to West Point or Annapolis, has brought good results from the time this country adopted that plan. The idea is entirely in harmony with the thought in a democratic country, it opens the door for the man of ability and ambition, and there have been plenty of men to appear for examination.

Recently two score appointments to West Point were made from the army and the national guard of the states and the fortunate men will appear at West Point for the July entrance, when they will take up the work of the four-year course, with appointment to official station certain if they complete the course. Soon there will be appointments of enlisted men from the navy and marine corps for Annapolis, where there will be a commission awaiting each man who finishes the course of study the nation provides.

The movement up from the ranks has been received with favor by the highest officers at West Point and Annapolis and the fairest method of selection by examination has been provided and administered. The plan would have been either a moderate success or a failure had there been unfriendly adminstration. There is credit due the army and navy that the fairest plan possible was provided and the measure of justice in examination and admission has not been questioned.

Examinations are difficult, and properly so; the government is seeking the best talent, because it has need only for the best men as its officers in the future. The course of study requires a strong and rounded mind, with a persistent will and ability well above the average. It is no place for weaklings. Examinations stop them when they try to enter. The entire course is planned and administered to bring out the man fully developed, able and competent, ready for the modest start but capable of making himself ready for the most important duties the service may bring to him. There is an advantage for the enlisted man because he has acquired abundant knowledge of one side of military or naval life. There are major generals who started from the ranks.—*Ohio State Journal.*

Is Gas Humane?

The impressive picture of whole cities and army corps going to sleep as a result of anaesthetic aerial bombs was recently painted by Dr. Gustav Egloff, a research chemist of Chicago. "A thousand planes, he said, each carrying 5000 pounds of chloroform, could put all New York to sleep—even with the addition of pleasant dreams"—with such force that gas masks would be useless.

The learned doctor may have been indulging in a little fantasy, but there seems to be no doubt that human ingenuity will some day develop such gases. The planes capable of carrying such loads are already invented—in fact, there are standard-type Junkers planes in service in Germany which carry 7000 pounds.

But the most interesting thing about this possibility is its bearing on the theory, which has won almost unquestioning acceptance, that the next war is bound to be worse than the last. It is commonly said that the last war was worse than all others and that the next one will mean the end of the human race. From the single standpoint of human casualties, however, there have been challengers of both these theories.

That distinguished British scientist Mr. J. B. S. Haldane has convincingly indicated that from the standpoint of human casualty the most deadly military weapon was the Roman short sword. Analyzing the casualties of the great war, he finds that poison gas caused proportionately fewer casualties than did the various weapons derived from gunpowder. Major General Amos Fries, chief of the army's chemical warfare service, has also shown that from the purely humanitarian standpoint there was much to be said for poison gas.

The future of this constantly changing world is becoming more and more unpredictable—and nowhere more than where scientific invention plays such a large part as it does in modern warfare. It is certainly conceivable that the development of gases may give armies a degree of shock, mobility and striking power which they did not possess in Flanders fields. The trench may possibly become as obsolete as the archaic Greek battering ram or as Hannibal's elephants. Gas, in consequence, may well make for a quick decision, a war of short duration and an incalculable saving of human life.—*New York Tribune.*

Regulate the Driver

Some affirmative legislative action must be taken to abate reckless driving and safeguard against automobile accidents on the highways.

In 1927, excluding accidents at railroad crossings and with street cars, 22,251 fatalities occurred from automobile accidents. One out of every four fatal accidents involved automobiles.

An analysis shows that in 5581 instances the driver disregarded signals; 4280 resulted from cutting in; 3859 drove off roadway; 7451 exceeded speed limit; 7247 on wrong side of road; 1281 in passing standing street car; 691 passing on wrong side; 938 making wrong turn; 631 passing on curve or hill; 574 disregarded officers' signals; 382 drove through safety zone; 19,720 did not have right of way; 1750 disregarded arterial stops.

The usual remedy suggested by those unfamiliar with the situation is elimination of railroad grade crossings. But none of these accidents occurred

at grade crossings and grade crossing accidents are responsible for but a small proportion of total fatalities. Removal of all grade crossing would further burden the people with taxation without remedying the main causes.

If accidents are to be reduced and driving on the highways made reasonably safe, there must be written into our statutes regulations which by driving qualifications will prevent the reckless, inexperienced, or physically incapacitated individual from obtaining a driver's license.

Railroad crossings, boulevards and densely traveled intersections and highways should be made arterial stops. With nearly 24,000,000 licensed automobiles in this country and increasing every day, and with about 95,000 accidental deaths occurring in 1927, of which 22,251 resulted from automobiles on the highways, the time has come when, for the public safety and welfare, definite and remedial action must be taken to curb primary conditions responsible for such results.

War Dogs

Lieut. Colonel D. W. Schubert, German army, retired, contributes an article on this subject which is published in the June 18, 1928, number of the *Militär-Wochenblatt*, of which a translation is here given.

In 1911 the dogs alloted to rifle battalions for intelligence communication service were done away with. It was assumed that with the introduction of modern means of communicating intelligence they had become superfluous. The World War proved that this was an error. The unanticipated stimulation of fire effect, especially by the artillery, rendered it necessary to put means of communicating intelligence and its technique on a new foundation. The messenger dog proved to be indispensable for that service and at the end of the war there were about 20,000 dogs in use.

The dog was successfully utilized during the war for other purposes also, for sanitary service to search for wounded men in obstructed terrain and in the dark and again as police dogs where they were used in rear of the army fronts as a watch and convoy dogs. Reference may also be made to the dog as a draft animal in which capacity it was used to a very large extent in the former Austro-Hungarian armies.

With such an extended use of the dog in army service it was quite natural that one sought out ways and means for making the dog's work as reliable as possible and to stimulate this service by the aid of modern methods of increasing his usefulness. Greater attention began to be given to teaching the dogs by scientific training and in this much success was attained during the war. An entirely new method of procedure was introduced for the sanitary service dog. The so-called "pointing out" to the sanitary dog had become a very difficult process. By this "pointing out" is meant that the dog should be taught to indicate in some way to his leader or master how to find a wounded man. The method consisted in this: a small roll of leather was adjusted to the neck strap of the dog sent out to find a wounded man which he is taught to seize and then return with it to his leader as soon as he has found a wounded man sitting up or lying down. This method of procedure was made uniform throughout the army and succeeded in retaining the dog in the army for the benefit of the wounded after it had been decided to let him go.

In connection with the systematic introduction of messenger dogs in the army in 1916 there came up the question in regard to the most correct training method to apply. In experiments made as far back as 1913-14 it had become evident that the capacity of the dog for following human scents had been greatly overrated. Contrary to the belief then prevailing dogs were found not to have much proficiency for following a scent; they followed traces of human beings not on account of any peculiarity of an individual odor pertaining to the man they were sent out to find but they fell in with other strange scents or existing marks in the local terrain. This acceptation turned out to be favorable to a certain extent in the further training of dogs for messenger service, where the element of memory of places played a part. But this rendered it necessary to lead the dog at least once over the line of communication to be traversed and also that both leaders must remain at the terminals of the lines, and finally that the service of the dog could be relied on only for a distance of two kilometers. In the war of position these disadvantages did not cut much figure.

After the war, army dog training stations were established and by that means provision was made for increased stimulation of methods for utilizing war experience gained in messenger dog training. Tests then made show even more conclusively that working on the line of using the dog's ability of recognizing individual human odors was unreliable. A specially prepared appliance made it possible to produce marks like the traces of human beings in form and outline but free from any human odor. It became apparent that the dogs passed over from application of recognition of human scents to these artificial traces. Investigation was also made of the problem whether or not possibly human odors brought down to the surface of the ground by heavy atmospheric conditions were effective in rousing the scenting faculty of the dog. For this purpose a man was carried over the ground to be passed over without touching the surface. It was then shown that the dog always gave up pursuit of the human scent when he arrived at the point where the man had taken his place in the contrivance in which he was carried. A "scenting path" was then established that could be followed by the dogs without effort. For this purpose use was made of an odorous fluid that could be passed to the ground drop by drop from a can carried by the trainer. If now the trainer in charge was obliged to leave the end of his line for any reason it was easy for the dog to follow scent so established on the line and thus regain touch with the leader. By this method an increased capacity of dog efficiency was gained which resulted, among other things, in extension of the distance over which dog service could be used up to six kilometers.

By means of a specially devised carrying appliance fastened to the dog's neck strap, dogs can be made to carry carrier pigeons, light firing supplies or parts, provisions, and many other things in addition to orders and maps. They may also be used to carry telephone wires to a distance of 500 meters.

Today every infantry regiment of our army is systematically equipped with 24 and every artillery regiment with 12 messenger service dogs.

The teaching personnel for messenger dog service is given twelve weeks training at the army dog stations. Officers and men are there given raw, untrained dogs which they must qualify for service by practical training. In addition, experiments are continually being made to stimulate and increase the working capabilities of the dogs. A dog messenger training school has been provided

for each national defense district and is charged with the duty of keeping up the supply of trained dogs for the army. With regard to the various races of dogs to be trained for army messenger service it must be said that the usual run of dogs trained for sport purposes do not cut any figure for army use. Among these may be mentioned shepherd dogs, fox terriers, and airdales, and representatives of those races are absent from the training stations, where one sees mostly the ordinary races of dogs that have been bred in Germany during the past ten and twenty years.—G. R.

Foreign Periodicals

Journal of the Royal Artillery, July, 1928

"DUNCAN" GOLD MEDAL ESSAY, 1927-28. Since aerial operations in the future will assume greater importance than was experienced in the last great war, discuss the advisability of rendering all, or the bulk of artillery units of the field army capable of dealing with air targets. What changes would be entailed by the adoption of such a policy in regard to:—(*a*) Organization; (*b*) Training; (*c*) Equipment, including ammunition of the Royal Artillery. "Cassandra." By Captain K. M. Loch, M. C. R. A.

With the tactical and technical sides of the employment of antiaircraft artillery occupying such a prominent role in coast artillery developments and in view of the necessary development of this arm to meet the ever increasing menace from air attacks, it is pertinent that we delve into this interesting contribution which offers a very logical solution to the antiaircraft defense problem.

Captain Loch begins his article with the statement of a premise that constantly guides his proposals for the employment of land artillery in antiaircraft defense. This premise is "economy must be the governing factor . . . economy . . . in the sense of real economy, *i. e.* adequate return for effort in war as opposed to mere saving of money at the expense of efficiency."

The article then prepares the way by answering two questions:

1. What is an airplane?
2. What is A. A. gunnery?

In answering the first of these two simple, yet ponderous, questions, the author asserts that "the two main attributes of the airplane are:

"1. It is potentially the eye which can see behind the hill.

"2. It is the power which can strike directly at the back areas of the theatre of war, at the brain and stomach of the army."

Air action, he divides into two parts, direct and indirect, and elaborates upon them under the headings of bombing and low-flying attack fire for the former and aerial reconnaissance and direction of artillery for the latter.

Then turning to the tactical side of A. A. defense he divides possible operations into four general phases:

a. In the immediate battle zone,

b. The reinforcement of the battle area,

c. Back area activities,

d. The landing at a base port and its subsequent maintenance.

In summing up the problem from a tactical standpoint the author concludes that "artillery performing its primary role of land fire cannot conveniently be

diverted to engage aerial targets." Nevertheless he admits that antiaircraft defense of certain points behind the front line might become so important that the high command must spare as much artillery as possible for this purpose and under these conditions he proposes using certain suitable field guns to supplement the regular A.A. batteries.

In order to choose the most suitable land artillery cannon and to prescribe the manner that they are to be employed for A. A. defense, the author answers the second question, "What is A. A. Gunnery?"

Briefly stating the problem of A. A. gunnery as recognized by the experts, he considers the requirements to solve this problem under three principal divisions:

a. Methods of fire,
b. Equipment (Guns),
c. Instruments.

Methods of fire are discussed in three parts: Case I, Case II, and Case III. The sighting devices required and the appropriate times for their employment are set forth for each case.

In making his selection of guns from the present land artillery of the British Army, the author sets up the ideal A. A. mobile gun, equipped for Case III, as the 100% standard, and by comparison he gives the following types of artillery equipment the figures of merit indicated.*

a. Field gun on self-propelled mount, with all-around field of fire and using Case III 80%
b. Field gun on a circular wheel platform, using Case III 60%
c. Field gun as in (*a*) using Case I or II 50%
d. Field gun as in (*b*) using Case I or II 20%
e. Field gun with 45° traverse 10%

The article continues by enumerating the essential instruments necessary for determining data in the various cases of fire. The author emphasizes at this point the fact that it is the determination of the *present* position, rather than the *predicted* position of the target that is the vital problem of A. A. gunnery. Then the merits of certain height-finding instruments, height-fuze indicators, and predicators (termed simple aids to eyeshooting in this article) are presented to the reader.

The subject of *Training* is treated under four subheads:

a. The officers,
b. Instrumental numbers,
c. Gun numbers,
d. Identification of aircraft.

Summing up the points of his argument the author gives it as his verdict that the backbone of the A. A. gun defense must be units armed with specially designed A. A. equipments, with the addition of suitable calculating instruments and adequate facilities for training; however, as a supplementary A. A. defense arm he believes that certain field guns can be used to advantage in the following manner: By retaining the present A. A. organization but with an increase in the number of specialists and instruments, thereby providing extra instrument details for loan to the land artillery when it must be employed for A. A. purposes. By this arrangement he believes that the land artillery employed as A. A. artillery can be equipped and trained with the minimum effort and expense.

* These figures are based entirely on technical considerations.

The question of special ammunition for those land artillery batteries employed in A. A. defense is eliminated by the author's classification of explosive shell as being just as effective as shrapnel in most A. A. firing.

Another salient feature of the article is that Case III is referred to as "the ideal method of fire control which greatly simplifies the execution and increases the accuracy of A. A. fire."

In the concluding paragraph of the article we find the author's decision that has been the keystone to his versatile plans for A. A. development, "the remainder of the artillery (other than A. A.) can, in certain circumstances, afford valuable support to these A. A. units, but only in an adequate manner, when assisted by them in technical details. Attractive as it may appear the idea of the land artillery battery as an independent, self-supporting unit is a snare and a delusion."—J. L. W.

THE NORTH-WEST FRONTIER. A lecture delivered at the Royal Artillery Institution, Tuesday, 7th February 1928. By Colonel H. Rowan-Robinson, C. M. G., D. S. O.

SPEEDING UP AND SIMPLIFYING "SURVEY." By Captain J. O. M. Ashley, R. A.

FORWARD OBSERVATION. By Major R. S. Ellis, O. B. E., M. C., R. A.

THE BATTLE OF CAMBRIA. November 20th to 30th, 1917. By Major General H. D. De Pree, C. B., C. M. G., D. S. O., *p. s. c.*

THE STORY OF "R. A., SHAFORCE." By Colonel J. H. M. Cornwall, C. B. E., D. S. O., M. C., *p. s. c.*, R. A.

THE BENEFIT OF THE DOUBT. By Brig. General Cosmo Stewart, C. B., C. M. G., D. S. O.

Revue Militaire Française, April, 1928.

THE ORGANIZATION OF THE GROUND FOR THE OPERATIONS AT CHAMPAGNE DURING THE WORLD WAR. By Major Roques.

IN FRENCH MOROCCO IN 1925. THE REESTABLISHMENT OF THE MILITARY SITUATION. By Captains Loustaunaulacan and Montjean.

THE LANDING OF MILITARY FORCES. By Colonel Alléhaut.

THE VICTORIOUS SERBS IN 1914. By Lieutenant Colonel Desmazes and Major Naoumovitch.

LESSONS OF THE MOROCCAN WAR IN AVIATION. By Colonel Armengand.

THE PERMANENT FORTIFICATIONS OF GERMANY IN 1927. By C. L. L.

Revue d'Artillerie, June, 1928.

A METHOD OF UNILATERAL OBSERVATION SIMPLIFIED. By General Martin.

HIGH BURST RANGING WITH INDIRECT LAYING. By General Martin.

BEFORE THE VERDUN OFFENSIVE OF 1916. A STUDY OF THE GERMAN ARTILLERY. By Lieut. Colonel C. Paquet.

THE AUTOMATIC OERLIKON 20-mm. GUN. By Major M. Morll.

A METHOD OF CLASSIFICATION ADAPTED TO THE WORK OF A DEPARTMENT. ITS ROLE IN THE ORGANIZATION OF THE COLLECTIVE WORK. By Major H. Pechot.

FIRE AGAINST TANKS. By Captain H. Ragonnet.

THE RANGE-FINDING SECTIONS S. O. M. A STUDY OF THEIR CHARACTERISTICS, THEIR CONSTITUENCY, AND THEIR USE. By Lieut. A. Duvignac.

COAST ARTILLEY BOARD NOTES

Communications relating to the development or improvement in methods or materiel for the Coast Artillery will be welcome from any member of the Corps or of the Service at large. These communications, with models or drawings of devices proposed, may be sent direct to the Coast Artillery Board, Fort Monroe, Virginia, and will receive careful consideration. W. E. COLE, *Colonel, Coast Artillery Corps, President, Coast Artillery Board.*

New Projects Received and Initiated

Project No. 643, Modified Loading Tray for 155-mm. Gun.—First Lieutenant John E. Reierson, 92d C. A., has submitted a proposed modification of the loading tray for 155-mm. gun. The Coast Artillery Board has recommended that the Ordnance Department modify a loading tray, in accordance with drawings submitted, for test under the supervision of the Board.

Project No. 644, Program for Trial-Shot Test Firings, Aberdeen Proving Ground, 1928.—The Coast Artillery Board was directed to submit a project covering the firing of the trial-shot problem during the exercises to be held at Aberdeen Proving Ground beginning September 1, 1928. This project has for its object the making of a comparative test of the present methods of firing trial shots and the method proposed by Lieutenant W. D. Hohenthal. The project has been prepared, approved by the Chief of Coast Artillery, and submitted to the Commanding Officer, Aberdeen Proving Ground, to be carried out in connection with the firings to be held there.

Project No. 645, Program for Trial-Shot Test Firings, 1928 (60th, 63d, and 65th Coast Artillery, AA).—A program similar to that outlined in Project No. 644 was prepared for firing by the 60th, 63d, and 65th Coast Artillery.

Project No. 646, Necessity for Issue of Rubber Tape.—Remark was requested from the Coast Artillery Board as to the necessity for the issue of rubber tape to Coast Artillery organizations, excepting Sound Ranging, for purposes other than splicing field and outpost wire.

Project No. 647, Damage to Mirror of 60-Inch Antiaircraft Searchlight.—Comments of the Board submitted on damage to mirror installed in searchlight in hands of 62d Coast Artillery, badly pitted due to molten metal from the positive head falling into the mirror, the head itself being badly burnt.

Project No. 648, Test of Motor-Driven T. I. Apparatus for Mobile Artillery.—Two time interval sets, modified as recommended in Project No. 308, have been returned to the Coast Artillery Board for test. These two sets are now undergoing laboratory test, at the conclusion of which they will be turned over to the 51st Coast Artillery at Fort Eustis for service test.

Project No. 649, Proposed Arbitrary Correction Scale for Panoramic Sight, Model of 1917 MII, for 155-mm. Guns.—The Coast Artillery Board studied a

proposed modification of the Model 1917 MII panoramic sight and recommended: (*a*) That the proposed scale be not added to the panoramic sight, model 1917 MII; (*b*) That development of a sight suitable for Case II and Case III firing for 155-mm. guns be expedited; (*c*) that the new sight include the mechanical features of the panoramic sight, model of 1917 MII; that the azimuth circle be graduated in degrees and hundredths instead of mils; and that an arbitrary correction scale be added.

Project No. 650, Test of Cast Aluminum Hand Loading Trays.—In accordance with O. C. M. Item 6767, two cast aluminum hand loading trays for 6-inch guns, Model 1900, not equipped with automatic loading trays, have been constructed and will be shipped to the Coast Artillery Board for test.

MAXIM LXV

The same consequences which have uniformly attended long discussions and councils of war will follow at all times. They will terminate in the adoption of the worst course, which in war is always the most timid, or, if you will, the most prudent. The only true wisdom in a general is determined courage.—*Napoleon's* Maxims of War.